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Impressions gathered during a Tour in the United States of America.*

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The visitor in a new country finds differences in everyday life and habits which challenge comparison with those to which he is accustomed, but with increasing familiarity the new manners are accepted without question. A stimulus has, however, been felt and the reaction may be either pleasant or disturbing. The City of Washington, the hub of the United States, combines the vigour of the north with the leisure of the south, and in its wide streets, dignified buildings and historical associations, the stranger is led in an interested, smooth and pleasant way to an adjustment of himself to the new surroundings. But the veterinarian with precious time going by must not dally in front of that momentous document, "The Declaration of Independence," or before the portraits of those vigorous gentlemen who signed that famous manifesto, nor must the great marble box sacred to the memory of Lincoln, or George Washington's soaring pinnacle, beguile him from that other building in which are housed the laboratories and offices of the Bureau of Animal Industry, a branch of the United States Department of Agriculture. And having entered that building it will afterwards remain in his memory more clearly than all others because here he will cease to feel a stranger, but find himself a welcomed guest among brother veterinarians.

The function of the Bureau of Animal Industry is to protect and assist in the development of the live stock industry of the country; its work and interests are therefore wide and varied, and for the execution of its duties it is organised in divisions, each division working under its own head and all grouped together under the Chief of the Bureau. The activities of the Bureau include, research in animal breeding and nutrition, research in the diseases and the parasitic infections of animals, the eradication of tuberculosis, the eradication from the Southern States of the ticks responsible for the transmission of bovine piroplasmosis, the control of hog cholera, the supervision and testing of veterinary biological products prepared and offered for sale in the United States, the manufacture of tuberculin and other diagnostic agents, the inspection of all meat for interstate and foreign shipment, the administration of regulations framed to prevent the introduction and spread of infectious disease amongst animals. The Bureau is in close touch with the control and experimental work conducted by the live stock sanitary authorities, experiment stations, and veterinary colleges of the different States.

The Bureau is equipped with its own laboratories, experiment stations and farms, and its personnel, except for the animal husbandry division, is composed largely of veterinarians.

The multiplicity of problems with which the Bureau is concerned makes it the natural centre at which to commence enquiries upon any subject relating to the welfare of animals, and from the information gathered a tour may be planned of those institutes throughout the States which for the immediate object it will be most profitable to visit.

Perhaps the greatest experiment which the livestock industry has undertaken is the eradication of tuberculosis. In this the different States co-operate with the Bureau of Animal Industry and a similar general plan is followed in each case, but each State is responsible for the framing of its own laws and regulations and decides the sum of money it may devote to the campaign. The work is therefore approached as public opinion and funds permit. Certain areas are selected and when the consent of the majority of the farmers is obtained a general tuberculin test of all cattle in the area is completed in as short a period of time as possible. This work is carried out by Bureau and State veterinarians and by private practitioners—the methods of testing used being the subcutaneous or single intradermal alone or in combination with the ophthalmic test. The areas generally selected are counties which measure approximately thirty miles by thirty miles. Reacting cattle are condemned and slaughtered; their value having been appraised, generally by the veterinarian conducting the test, an indemnity is paid to the owner, partly out of State funds and partly from Federal moneys administered by the Bureau of Animal Industry. Retests of the reacting herds are continued at three to six month intervals and these are followed by a general re-test of all the cattle in the area, and if the percentage of reacting animals is one half of one per cent. or less the area is declared a "modified accredited tuberculosis free area" for a period of three years. Measures regulating the movements of bovine animals and dairy produce are enforced. Three years later there is a general re-test of all the cattle in the area and if the percentage of reacting animals is still half of one per cent. or less the area is reaccredited. The most gratifying feature of the scheme is the very high percentage of accredited areas which are proving eligible for reaccreditation after the three years' interval.

Some idea of the magnitude of the scheme may be gathered from the fact that in 1927 the Federal Government voted 4,653,000 dollars and the States 13,000,000 dollars for the work, and at the end of 1927 financial year over 9,700,000 cattle had been tested in twelve months.

Though America is a wealthy country, her citizens would appear to be no fonder of paying taxes than any other people, and it puzzles the stranger to know how in this great industrial country such large sums have come to be devoted

* This tour was undertaken in May, June and July, 1928, under the terms of a Travelling Fellowship granted by the Ministry of Agriculture and Fisheries for the purpose of studying Contagious Abortion and Sterility in Cattle.

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to the farmer. The answer probably lies in the able use of propaganda, much having been made of the danger to human beings in drinking milk from animals which are tuberculous. The Americans are nothing if they are not sanitary and this argument would be a weighty one and be readily listened to, and no doubt it had more to do with setting the scheme in motion than the fact that in tuberculosis free herds there would be improved health of the animals with subsequent greater economy to the farmer and the country. This view is expressed entirely as a personal impression, but it is significant that those States most heavily infected with bovine tuberculosis are the great industrial States of the north east, and it is these States which have to incur the greatest expenditure, while many of the more agricultural States further west, being comparatively lightly affected, have to find proportionately less money, and their farmers may be in the happy position of selling cattle to replace those condemned in the heavily infected parts of the country. There were many who feared that the publicity given to the danger of drinking milk from tuberculous cows might frighten the public and react adversely on milk sales. Such fears were unfounded. The public apparently forgot the danger or, having voted large sums of money for its suppression, believed it ceased to exist. At all events, the consumption of milk has steadily increased.

One disquieting feature in the campaign is the finding of animals which show no lesion of tuberculosis at *post-mortem* examination, although these animals have reacted to the tuberculin test. There is no satisfactory explanation for this, and the question is engaging the attention of research workers, but the problem would appear to be a difficult one. To prove the reason for a rule may be hard, but to prove the reason for an exception is harder still. To the opponents of eradication the occurrence of no lesion reactors serves as a useful cudgel for the belabouring of the scheme.

In the United States, before the establishment of certified accredited herds, it was generally believed that the tuberculosis of swine was of bovine origin, and that with the elimination of tuberculosis from cattle there would be a corresponding decrease of swine tuberculosis, and the packing houses came forward and offered a bonus of ten cents per hundredweight on all swine from accredited areas. There was not, however, the looked for substantial reduction of tuberculosis in swine, though there was a marked reduction in the number of swine showing generalised lesions. Investigation into the nature of the localised tuberculous lesion in swine coming from accredited areas showed them to be generally of avian origin, and an added stimulus was given to the elimination of tuberculosis from poultry.

The activities of the Bureau of Animal Industry being so largely directed to the control of disease, it is interesting to find that money has been allocated for the payment of indemnities on animals infected with Johne's disease, and slaughtered because of giving a positive reaction to johnin. The indemnity is only available when the State provides a similar sum, and I am not aware of its having been taken advantage of to any extent, but it shows the serious view which is being taken of this disease, and it acts as an encouragement to State and other institutes to prosecute research and control on Johne's disease. Already one commercial firm is supplying johnin for diagnostic work.

Among the most notable achievements of the Bureau of Animal Industry is the work on the control of hog cholera or swine fever, and the finding of a safe and reasonably cheap method of immunising swine against this disease. The serum virus method of immunisation has gone a long way to reduce the losses, but there is no compulsion to use it, and many farmers if they have been free from the disease for some time neglect to immunise their animals, and should infection strike these susceptible pigs the losses are heavy. If immunisation were universal the toll taken by hog cholera would be further reduced.

All swine passing through public stockyards are immunised as a precautionary measure to prevent, as much as possible, the spread of the disease throughout the country.

Commercial biological houses produce the serum virus for immunisation in great quantities and according to standard methods laid down by the Bureau of Animal Industry, and under their supervision and inspection the cost of the treatment has dropped to a very low figure, a few cents per head. The immunisation of young pigs before weaning with proportionately smaller amounts of serum virus, is giving encouraging results, simplifying treatment and further reducing the cost. Contagious abortion of cattle due to *B. abortus* ranks amongst the diseases acknowledged to be most serious. American workers have contributed invaluable and fundamental knowledge to the bacteriology and pathology of this disease, and careful and thorough work has been done on immunisation with living vaccine and on the control of the disease by segregation of infected animals detected by means of the blood test.

The diversity of opinions which exist upon the control of abortion disease by the use of living vaccines indicates the complexity and the many-sideness of the question, and any attempt to discuss it would involve a careful survey of the epidemiology and pathology of the disease, and the sifting of the information available upon the breeding and reproductive efficiency of vaccinated animals.

If a general statement upon such a controversial topic be ventured, it may be said that the consensus of opinion among those engaged on research into this problem does not favour vaccination as the best means of control. This attitude is reflected in the last Report of the American Veterinary Medical Association's Committee on Contagious Abortion, which ignores vaccination altogether, and states: "The only successful method of controlling and eradicating bovine infectious abortion at present known is founded upon the results of blood tests."

The control of abortion disease by the segregation of animals giving a positive reaction to the blood test and the building up and maintenance of non-infected herds is making substantial headway despite the many difficulties in its execution. The extremely satisfactory breeding records which are claimed for the abortion-free herds are attracting the favourable attention of farmers and breeding societies, and augur well for the further eradication of the disease.

The Pennsylvania State Bureau of Animal Industry has been actively preaching and practising the eradication policy for a number of years. Up to last summer about sixty-five herds, averaging thirty-four head apiece, had been freed and maintained free from the disease for periods of one to six years, and over six hundred herds are in process of being freed. Other States are engaged on similar work with equally encouraging results. Their successes are dependent on the frequency and completeness of the bleeding and testing of the herd and the thoroughness of the segregation measures based on information supplied by the tests, together with herd management compatible with sound hygienic principles.

As yet there are few legislative measures directed to the control of contagious abortion, but three of the southern States require that all imported cattle shall give a negative blood reaction. It is known that infection cannot be excluded with certainty on a single negative blood test, and the admission of animals which have passed a single test can only be regarded as keeping down the numbers of infected animals introduced, but not as excluding them entirely.

Research and control of contagious abortion disease may be claimed as the veterinarian's duty, though no one will claim it as the sole right of the veterinarian, and it is worthy of remark that in the State of Connecticut valuable research has been carried out by the co-operation of bacteriologists and animal husbandrymen, working independently of veterinarians, and these workers are now successfully applying measures of control in the field.

The eradication of abortion disease is confined chiefly to tuberculosis-free herds. It is a difficult task to eradicate one disease, but when one attempt is made to eradicate two insidious and chronic diseases from a herd at the same time, the difficulties of herd management become seriously complicated and multiplied. We therefore see in some of these American herds a happy example of all things working together for good.

The last outbreak of foot-and-mouth disease in the United States occurred in 1925. Since that year the country has been free from the scourge. It will be remembered that during the 1924 outbreak in California the disease spread to the wild ruminants, causing grave anxiety and necessitating the destruction of the wild deer in those parts. The origin of the 1924 outbreak was traced to the feeding of pigs with garbage from a ship lying at a naval dockyard on the Pacific coast.

America owes her present freedom from foot-and-mouth disease to the rigorous application of the slaughter policy, and to the execution of measures framed to prevent the introduction of the infection from countries where foot-and-mouth disease is enzootic. She has shut her doors to the bringing in of all meat from these countries.

At the present time the importation of livestock from Great Britain into the United States is not permitted, but I understand they may be taken in after a sojourn in Canada.

Mention has been made of State experiment stations, each of which has its own particular problems dependent upon local conditions. Thus, for example, from the stations in the north-east we have work on tuberculosis of cattle, Johne's disease, and bovine abortion; from Kentucky, the horse breeding country, comes research on abortion and breeding troubles in mares; from the great hog-raising States in the middle west, researches on tuberculosis and enteritis of swine; and from Montana and Colorado reports on sheep diseases. The domestic fowl, which is numerous in all parts, is receiving its due share of attention.

The Experiment stations prepare and publish scientific and popular bulletins. The popular bulletins are distributed to the farmers, and keep them instructed and interested in matters pertaining to the prevention and control of disease.

Veterinary Education.

During my short tour of institutes engaged in veterinary research and education I had the opportunity of visiting six of the eleven veterinary schools and gaining an impression of their activities. In the United States there are ten State-supported veterinary schools, and one which is supported partly by the State and partly by private endowments.

The three largest schools visited were at Ames, Iowa; Ithaca, New York, and Philadelphia, Pennsylvania.

At Ames the veterinary school is a division of the Iowa State College of Agriculture and Mechanic Arts. The veterinary buildings form a separate unit and are situated in the beautiful college campus, outside the small country town of Ames. The buildings are good but not sumptuous, and the lecture rooms, laboratories and clinical departments are well equipped. Facilities for the handling and treatment of large animals are provided on a generous scale, and further buildings are to be added to the cattle clinique. The college has between 90 and 100 pupils, and on the teaching staff there are 16 veterinarians engaged in instruction in Anatomy, Physiology, Pathology, Bacteriology, Surgery and Medicine. Animal Husbandry, Chemistry and Dairy Industry, are taught by other divisions of the college under the instruction of professors and teachers of these branches of education. The veterinary school, therefore, benefits by its close association with the other divisions of the college.

Each year the school gives a short course for practitioners in which lectures and demonstrations are delivered by members of the staff, practitioners, and research workers from other parts of the country on recent advancements in veterinary knowledge. The lectures are published in a veterinary practitioners' bulletin and set a high standard of excellence.

Similar general remarks apply to the New York State Veterinary College at Ithaca, N.Y. The college is part of Cornell University and for the year 1927—1928 the State grant for maintenance amounted to 162,220 dollars. According to our meagre standards the staff of teaching veterinarians is large, and here again is an exchange in teaching, the University and Agricultural College giving instruction in Chemistry, Entomology, Histology, Animal Husbandry, Botany, and Zoology, while the veterinary school reciprocates by giving instruction in Physiology, Bacteriology, Pathology and Horse-shoeing. This reciprocity must materially help to a better understanding and appreciation of each other's work.

The college is especially fortunate in the extent of its ambulatory clinique and its large and small animal

cliniques. In 1926—1927 the ambulatory clinique treated 365 horses, 3,504 cattle, 494 sheep and 500 swine. From the details of the cases we find in horses, strangles 15, azoturia 9, impaction 7, lymphangitis 10, teeth sharpening 47, laminitis 5, etc. ; in cattle, actinomycosis 7, pericarditis 5, pneumonia 6, traumatic gastritis 27, dystokia 45, mastitis 100, metritis 40, endometritis 11, pregnancy examination 90, retained placenta 98, sterility 102, dehorning 181, etc.

In the large animal clinique for the same period there was a total of 1,787 cases, comprising horses, cattle, sheep and swine. The net total of cases in the small animal clinique amounted to 2,103.

These figures are very striking, particularly in the well-balanced proportion of the different species which the veterinarian is called upon to treat, and the students in their third and fourth years have ample opportunity and are required to attend these cliniques under the instruction of teachers of repute.

The veterinary college at Philadelphia, unlike the two already mentioned, and unlike all those others which I visited, is not situated amidst spacious lawns and avenues of trees with the open country as a background, but, like our schools, is situated in the midst of bricks and mortar. The town of Philadelphia does not, however, throw its tentacles over miles of surrounding country, consequently it is found practicable to have an ambulatory clinique connected with the college, and this is used to instruct the students in clinical work on large animals. From the location of the college it is needless to say that abundant small animal practice is possible.

The American Colleges are making a serious attempt to give their students instruction and practice in the treatment of the diseases of farm animals. The importance of adequate instruction on physical diagnosis and the interpretation of symptoms in the light of knowledge having for its basis the sciences of physiology and pathology needs no stressing. For the further advancement in the treatment of disease, minds trained in reasoning and deduction are required, and if these mental habits are not developed during the preparatory years of professional education it is difficult for the individual to acquire them later on. The clinical field should be the ideal ground on which to correlate and apply all knowledge gained in the veterinary training, and it is this, apart from mere familiarity with the clinical picture and manipulative dexterity, which makes clinical training the keystone in the art of undergraduate education upon which all work should centre.

Some years back America may not have been fortunate in the general standard of education of her veterinarians, and the Colleges had to shoulder the burden of improving this. Their efforts are now being rewarded. It is on account of its scientific training that the veterinary profession in America is regarded to-day as filling an increasingly important and necessary sphere in the life of the community, and an optimistic outlook on the future is justifiable.

A well-known feature of American college life is the number of students who are not provisioned with a superabundance of this world's goods, and who find it necessary and possible to earn money during the vacation and even

(*Continued at foot of next column*).

I. The Incubation of Tuberculous Infection, and the Development of the Capacity to React.
II. Remarks on the Ophthalmic Test.
III. The Doubtful Reactor.

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and
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1. The Incubation of Tuberculous Infection and the Development of the Capacity to React.

How soon after the initial exposure to and contraction of tuberculous infection may we expect bovine animals of different ages to react when submitted to one or other of the tuberculin tests ?

It may be boldly stated that the recent infection of an animal with tuberculosis is not detectable by the use of tuberculin, and we have been tempted to write this article because experience has led us to believe that the actual incubative period is in many cases longer than will be generally admitted. Indeed, this question is more intricate and involved than would at first appear. The length of time that elapses before an infected animal displays the capacity to react is doubtless inconstant, and presumably depends on many factors, *e.g.*, the amount of the initial dose of infection ; the manner and venue of its introduction ; whether the dose is frequently repeated ; the age of the animal ; its natural susceptibility or resistance to infection ; the type and virulence of the bacilli at work, etc.

Few things are more disturbing to a practitioner, if he be not fully alive to the snag that lies hidden in what might be called " this period of latency or incubation," and has not, therefore, apprised his client of the possibilities of the situation, than to find that animals he has certified as non-reactors have failed abjectly to the subsequent test of someone else, applied a few weeks, a few months, or

(*Continued from previous column*).

during the term to pay their modest fees and board and lodging. The work they do may be of a menial character, but happily it does not affect the social status of the students, and work would appear to be easily found, which must mean that these young men and women recipients of the higher education of the land are not found inferior to their less educated brethren in the discharge of simple duties. Whether the effect of unskilled work upon the student is or is not desirable I have no means of knowing, but the system certainly makes University education available to many who would otherwise be excluded, and those of natural ability will profit by it. The nation must be the richer in consequence.

This impression of my visit cannot be concluded without reference to the hospitality and kindness of our American colleagues, and to the frankness and readiness with which they give information. The unexpected and unknown stranger is made welcome and no trouble is spared to make the visitor's stay both profitable and happy. I left the United States with the happiest of memories, and a feeling of profound indebtedness for all the kindness I had received.

longer, after the animals have changed hands. A considerable correspondence with practitioners, far and near, on their disconcerting experiences in this connection would indicate that the significance of this latent period of " delayed capacity to react " has not been much suspected or generally recognised. For several years we have declared our belief in this precept, and quoted, on opportunity, numerous examples in proof thereof, culled from the work we do in the graded herds in this county. Our aversion to the introduction into a tubercle-free herd of an animal that has been exposed to infection, though it has successfully stood a double test, applied by a qualified practitioner, is well known in these parts. Nevertheless, the declaration of the truth as we see it has begotten considerable criticism, appeals have been received, misrepresentations have been made, and it has been suggested that we believe that private practitioners do not apply the tuberculin tests properly. It is unnecessary to state the foolishness of such a suggestion regarding an operation so simple in the hands of any qualified man. Such cases would carry a different complexion if the certificates accompanying the animals intended for graded herds included a guarantee of some reliability that the animals had not been exposed to infection, or a note sufficiently descriptive of their history and origin to enable judgment.

Repeatedly, when cows, much desired on the score of breeding, have been brought to graded herds accompanied by duly certified charts, the purchasers have been prevailed on to put them in isolation when the quality of the transferrer herd has been in any doubt. In most cases, when coming from suspected sources, they have gone down on the first prescribed test, applied in from two to four months, but whenever such an animal has stood the test successfully at the end of that limited time, we have not trusted the result of our own test, preferring to keep the animal in continued isolation against a later test.

The first case of special enlightenment we met with was a well-bred cow, duly certified when she came, that passed our first double test after three months' isolation, and our second after five and a half months, when we decided to risk her in the herd. Fully ten months after her arrival she was tested along with the whole herd of fifty-nine animals and was the only reactor. Whether she would have reacted at the 7th, 8th or 9th month is, of course, a moot point. As this cow came as one of a pair, and as her neighbour failed at the first test, after three months' isolation, it might be reasoned that her exposure to infection was thereby continued, but it will be generally conceded that there cannot be much danger from a neighbour that had so recently graduated as a reactor.

We have adopted many expedients to gain experience on which to base opinions on this problem, and are not the least convinced that even so long a period as one year is the limit of time within which, if a cow fails to react, she may be safely admitted into immaculate company.

Recently, in a herd of forty-four cows, two animals that always stood together reacted fully to the intradermal and ophthalmic tests, there being only one other reactor in the byre standing some distance away. These two cows came together as heifers, certified as non-reactors, from a herd in a southern county, where, we are told, all the animals were not tested, and it was singular that they should react together after the same period of time. But on looking up the records, we were astonished to find that they had passed the prescribed tests not less than five times at our hands, and had not even any mark, indicating doubt, against them. Such an extreme happening forces one to wonder where and when they got infection, and though it is perhaps incompetent at this stage to conclude they had been incubating all the time, especially as each testing of the herd revealed one or two reactors, the possibilities inherent to the case must be kept in view. We could cite many other less extreme cases in which eventual reaction, when the danger period was deemed past, retaught the old lesson.

With the advent of the intradermal test, supreme as it is over the faking tactics of those who tuberculinise animals beyond the point of sensitiveness to the subcutaneous test, the call for controlling tuberculin has lost part of its force. It would perhaps be difficult to estimate what percentage of pedigreed animals, having successfully stood the tuberculin (subcutaneous) test in this transferrer country, and subsequently failed in that of the transferee across the seas, did pass because they were faked by designing men, and then failed when the insensitive stage had passed. It seems to us that a full understanding of this " period of incubation " may very well supply a reason for the majority of cases, and thus lessen considerably the stigma so commonly attached to some exporters.

Professor Gaiger's article in your number of December 1st gives practical point to the issue, and we are constrained to believe that overseas buyers, requiring tubercle-free animals, are in a position analogous to our owners of tubercle-free herds in this country, and must endeavour to get animals that have not only passed a sufficient test, but have not been exposed to infection. We are aware that through loose or, perhaps, misinterpretation of the Milk (Special Designations) Order (Scotland), 1923, (and we believe the same has obtained in England), cows coming with a veterinary certificate of having passed the double tests of the Order have been allowed direct access into graded herds, to their ultimate undoing, for this cannot be done with impunity. It is not uncommon that a dealer has to supply one or two cows that have recently passed the tuberculin test, to fill orders of different kinds, *e.g.*, to go to a breeder of valuable stock for the rearing of calves, or it may be to fill a stall or two in a graded tubercle-free herd. With that object in view, he may get ten or more cows tested, and then send on, in the best of faith, one or two that have passed the test, although they have been exposed to and have probably contracted infection that will be disclosed later. Such animals may be safer than definite reactors, for either purpose, for the time being, but in the majority of cases they impose betrayal on the purchaser, and are all the more dangerous because they are deemed safe.

The proprietors of a large cattle auction mart in this county, with a commendable desire to meet the wishes of their clients, and to give facilities for the sale of tubercle-free animals by public auction, have set apart for a considerable time a place of isolation for them prior to sale. In each case the cow is accompanied by a veterinary certificate. Some of the animals have come from graded herds where the chance of catching infection is entirely or almost entirely absent, and can be regarded as safe to buy,

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but unfortunately others have simply passed a recent test and many of them are predestined to disappoint their purchasers.

Between these two classes of cows there is a distinction with a difference that is as yet only fully known to those who, from experience, have gathered wisdom.

Safety lies in putting the question privately or publicly: "Is this cow out of a herd of tubercle-free animals, graded or otherwise?"

It may be asked what is to be done in the establishment or maintenance of tubercle-free herds if the purchase of such cows is so fraught with danger. The problem is admittedly a difficult one in all localities where surplus animals are not available from—

(*a*) Graded herds;
(*b*) Tubercle-free (ungraded) herds; or,
(*c*) Other breeding herds with a known reputation for freedom from tuberculosis.

The chief desideratum for all Certified and Grade A (T.T.) herds is that they should be so fully self-supporting that they will have sufficient milch stock for their milk contracts and the rearing of calves at all times, and perhaps a surplus cow for sale on occasion.

The maintenance of a tubercle-free graded herd where no breeding and rearing is possible is a philanthropist's job, and could only be attempted by others assured of a higher price than is usually obtainable for all produce, if an adverse balance is to be avoided. In carrying out propaganda for the increase of tubercle-free graded herds in any district it is only worth while giving encouragement to the owners of breeding herds that have a fair prospect of being independent of other supplies. Let those who have had experience of efforts made to build up or maintain such herds by the purchase every now and again, even with some discrimination, of animals that carry a recent tuberculin test certificate, cast their minds back, and we feel certain that in most cases they will observe a considerable trail of failures that has served to stagger professional opinion that was almost sacred, daunt the courage of ambitious owners and beget their caustic criticism not only on the reliability of the tuberculin test, but, in some ill-advised cases, of the professional man himself.

It is from such experience that our conviction has sprung, and if we are right in believing, as we do, that the period of incubation is in some cases of considerable length, we cannot do otherwise than continue to declare the issue "that the direct introduction into a tubercle-free herd of a non-reactor that has been exposed to infection is decidedly dangerous." If our contention appeals to members of the profession engaged in this work, it is for them to judge whether they should act accordingly.

Scores of cows certified as having passed the tuberculin test have subsequently reacted in the absence of any post-certificate exposure to infection, but we have yet to meet the animal that, having failed to the combined double intradermal and ophthalmic tests, has ever afterwards passed a reliable tuberculin test, and he would be insanely bold who would regard such a cow as free of tuberculous infection because she had subsequently given a doubtful thermal reaction to the subcutaneous test. The result of that test is profoundly prejudiced for a time by the prior use of concentrated tuberculin.

II. Remarks on the Ophthalmic Test.

Our belief is that there is no test known, and there is no way of applying any known test, to enable us to mark the subsequent reactor, before or until the quality of sensitiveness to tuberculin, which is the indication of infection, has been established systemically by the progressive action of the infection itself present in the animal. When this has come to pass, her detection should be equally easy by every veterinary surgeon who exercises the care required in the use of tuberculin.

Subsequent research may prove us wrong, but we incline to the belief that the simple and often derided ophthalmic test repeatedly applied at intervals up to six times in the same eye will produce a definite reaction and enable a definite decision earlier in the incubating cow than any other test. If this be true, it is perhaps because the ophthalmic test is applied to more highly organised structures than the other tests. It is conceivable that the existence of the specific toxic product induced by the lytic action of a lysin of tuberculous endotoxin on the tuberculin used—the acknowledged factor in all reactions, both local and general—should be susceptible of the earliest detection when the test is applied to the most sensitive tissues available.

An obvious criticism of this conjecture lies in the known failure of the ophthalmic test, *as generally applied*, to produce a reaction in about one-third of all known reactors to other tests, but, as already stated, it is only by properly sensitising the eye, using repeated instillation, that the best results can be got from the ophthalmic test.

We frankly admit that, as generally applied, using a sensitising and diagnostic instillation only, it fails to detect 34 per cent. or thereby of reactors, but our methods are perhaps more to blame than we wot of for its seeming failures. When it indicates reaction, the ophthalmic test often does so in a third of the time of any other test, and at the moment we incline to the belief that it has also an early detective capacity in the case of the latent reactor. We have seen a full-blown reaction to a single instillation of an eye admittedly sensitised by former negative tests, in two and a half hours, when the commencement of reaction to the subcutaneous test, applied at the same time, only began between the 13th and 14th hour. The animal was the only reactor in the herd for over two years, and the *post-mortem* examination had to be carefully done to discover four small tuberculous lesions.

We have experienced so much of this early detective quality in the ophthalmic test, that we presume, and there is evidence, that others have met with similar results. In a recent case, destined perhaps to become historic, (as an example of how speedily infection may spread under a single roof—a case we hope to report later), of thirty-two animals, out of thirty-three which reacted to the intradermal test, no reaction to the ophthalmic test was noted in one-third of the animals, but when they were similarly tested nearly eight months' later we got 100 per cent. reactions to the ophthalmic as well as to the intradermal test. In one case, the animal was shewing a reaction to the ophthalmic test within half-an-hour of the application of the sensitising dose.

It is not unlikely that if we had on the first occasion repeated the instillation of the sensitised eye in the case of

those animals that gave no reaction ophthalmically, we would have brought the percentage of reactors to the eye test to the level of the intradermal test at that time.

While well-marked discharge enables decision, decided engorgement of four or five blood vessels on the eye, in the absence of discharge, also marks reaction—comparative examination being made of both eyes—and one gathers confidence in deciding by comparing the condition of the blood vessels in such a case with those on the eyeball of another cow with marked discharge, after wiping off the discharge. In such cases, and indeed in all suspicious cases, when one wishes to demonstrate discharge in an apparently dry eye, the animal should be seized by the near horn and the nose, and the head tilted over, to rotate it on the eyeball, which it will be noticed maintains its straight poise. This has the effect of disclosing the presence of any discharge that may be lurking under the upper eyelid and causing it to gravitate to the inner canthus. On occasion, the seemingly dry eye of an eventual reactor will show discharge within ten minutes after instilling the eye (sensitised 48 hours before) with the second diagnostic dose. A tenable inference would be that the fluid tuberculin swilled lurking discharge into view.

Again, in the case of a cow that had come to a certified herd with a veterinary certificate and which had been put into protective isolation, we applied the then prescribed subcutaneous and ophthalmic tests at the end of three months, and within twelve hours there was a maximum ophthalmic reaction in the untreated right eye, while there was none at all in the left eye (tested perhaps for the first time), and though there was no thermal reaction to the subcutaneous test, we concluded that the right eye had been tested on a former occasion, that its latent sensitiveness was now activated by the full dose of tuberculin used, and that the cow was a reactor, which had been heavily tuberculinised before sale. Obviously the tell-tale ophthalmic test is not suitable for the purpose of him who uses tuberculin for an ulterior end.

If any alteration is to be made in the " prescribed test " of the Milk (Special Designations) Orders by limiting it to a test admittedly so reliable as the intradermal, we will be discarding, in the ophthalmic test, one that carries very considerable detective power. We would be sorry to give it up, except on the score that it produces a very sore-looking eye in many reactors.

III. The Doubtful Reactor.

Recently we heard a responsible veterinary surgeon, when acting in an advisory capacity, declare that he regarded all doubtful reactors as non-reactors. Our view is entirely opposed to this and we at once put such animals into strict isolation or advise their sale. Moreover, because our experience has been that they almost invariably react fully to a later test, we now regard as positive certain classes of cases that in earlier days we put down as doubtful only.

Is there then a measurable period of time between the negative and positive phases of reaction to tuberculin in the incubating animal when the saturation of the humours of the infected subject with the lysin of the tuberculous endotoxin referred to is too incomplete to yield unequivocal reaction to tuberculin and only sufficient to beget a degree of sensitiveness compelling doubt in the result? We believe there is such an interregnum, not just because we have on record many instances of former non-reactors which subsequently afforded a doubtful and later a complete reaction to the usual tests, but because it is inconceivable that a state of negativeness in this regard could change suddenly or within a few days to undoubted positiveness.

It should be stated that in the days of our earlier use of the intradermal test, when we shaved or clipped the seat of inoculation, we did meet with a definite number of odd animals exhibiting an elliptical, diffuse and slightly tender swelling twenty-four to forty-eight hours after the first dose. As several of these were members of herds known to be tubercle-free, they were at once re-tested without removing the hair, and in all cases the result was negative. In most of them it could be demonstrated that the edge of the razor or clipper had abraded the skin and produced a weal that closely simulated a small reaction.

Because of this experience, we have entirely discarded shaving and only use the clippers when the hair is long enough to interfere with interpretation of results, or if the owner when asked expresses a desire for clipping. Our calculated view is that provided the skin looks clean, it should receive no treatment before or after the application of the test, if we would avoid prejudicing its result.

It is well known that the degree of reaction to any known test is no measure of the extent to which lesions of tuberculosis are present in the tested animal.

In animals killed after reaction to two tests, simultaneously applied, we have on occasion utterly failed to determine the positive existence of any lesion of tuberculosis, although we had recourse to guinea-pig inoculation with scrapings taken from such tissues as shewed the slightest departure from normal. In other strong reactors one or more small lesions were only found after diligent search, and thus it is evident that a sufficient saturation with the lysin that enables reaction to tuberculin can be elaborated from foci (plentiful it may be) which are invisible to the naked eye or of which a few are just discoverable.

It is generally believed that sensitiveness to tuberculin is in some instances lost in advanced cases of tuberculosis. It is obvious that implicit faith cannot be placed on a thermal test applied to an animal whose daily temperature varies within wide limits, even though early thermometrical observations are made, but we are by no means convinced that such an animal, if not at the point of death, would fail to react intradermally, intrapalpebrally or ophthalmically.

Personal.

Marriage: Larnach—Edgar. At Oswie, Whithorn, Wigtownshire, on 26th December, by the Revd. W. A. Reid, M.A., Whithorn, Albert Manson Larnach, M.R.C.V.S., Musselburgh, to Annie Anderson Stewart (Lillie) daughter of Archibald Edgar, M.R.C.V.S., and Mrs. Edgar, Oswie, Whithorn.

M.Sc. Degree.—We congratulate Mr. Reginald Lovell, M.R.C.V.S., D.V.S.M.(Vict.), Research Assistant in Comparative Pathology, London School of Hygiene and Tropical Medicine, on his having had conferred upon him, at the Degree Ceremony held on 20th December, 1928, the degree of M.Sc. of the University of Manchester.

XUM

The Veterinary Record.

5th January, 1929.

VETERINARY SCIENCE IN THE UNITED STATES OF AMERICA.

The inspiring article by Mr. A. D. McEwen, which appears in this week's issue of *The Veterinary Record*, will be read with interest. We would express our appreciation that a special grant from public funds has enabled a veterinary research worker from this country to make an extended study tour of the United States. The account of the tour is valuable because it shews what can be accomplished in a stock-raising country by an efficient and well-organised veterinary service. Though no claim is laid to perfection, America is demonstrating that such contagious diseases as bovine tuberculosis and abortion, with their attendant ills, can be eradicated on a wholesale scale when the problems are tackled on proper lines. It may also be noted in passing that Canada is waging a campaign on similar lines against tuberculosis. As concrete instances of what has been achieved so far in the States it may be repeated that since 1917 the incidence of tuberculosis has been reduced from an average of 4 per cent. to less than 0.5 per cent. in 477 counties. Contagious abortion has been eradicated in Pennsylvania from over 65 herds, comprising some 2,200 cattle, and is in process of being eradicated from over 600 herds. These are facts which cannot be denied and it is useful to seek the reasons which have made such results possible.

The first point to be noted is that in the case of tuberculosis control measures are not put in motion by a state until a majority of stockowners have signified by ballot their agreement with the proposals. In the case of abortion there is a growing demand among the farmers for the eradication of the disease because it is being realised more and more that it is economically unsound to maintain abortion-infected herds. In this way the campaign against disease receives the support of public opinion, which must be regarded as essential to success. This attitude of the public mind has been created as the result of the wonderful propaganda for which the Americans are noted. The public has been educated into a belief in the necessity of sanitary measures and this has led to a strong demand for, among other things, clean milk and healthy meat and, as a consequence, for healthy stock. There is thus an increased sale for animals derived from herds which have been accredited as tuberculosis or abortion free.

There is no question that in comparison with the older European countries, including Great Britain, the United States is for several reasons more favourably situated for controlling some of the contagious diseases. Thus, the average value of the cattle is lower than in this country. The incidence of tuberculosis is on the whole far lower in the States than in Great Britain and this is probably true also of contagious abortion. Against this must be set the fact that in some states, from which tuberculosis is being successfully eradicated, the incidence was originally as high as in some herds in this country. Finally, there appears to be more wealth available in the States for the control of animal disease than there is here.

None of these facts can diminish the admiration which should be extended to the authorities in the United States, as well as in Canada, for their wisdom in spending money freely on the control of diseases before they have attained serious dimensions. The more favourable position of North America should not deter authorities in this country from making more extensive and more organised efforts to control disease. It is true that much remains to be done in the way of acquiring new knowledge, but it is equally true that much more should be done in the application of knowledge which has been accumulated by the discoveries of the past. Stockowners should be brought to realise that one potent cause of the much lamented depression in agriculture is the widespread existence of preventable diseases among farm stock. In this way alone will arise a demand for a properly organised veterinary service which, by following the lead which has been set by the United States, will be in a position to make a real contribution to the prosperity of British agriculture.

Food Regulations of the U.S.A. Army.

It is of interest to state that the War Department of the U.S.A. has issued a regulation requiring that all meat and meat food products purchased by the Army or for any canteens or restaurants of any kind that cater for soldiers, must be prepared under the supervision of the United States Bureau of Animal Industry, the Veterinary Corps taking up the inspection at that point. This has the effect of eliminating all municipal and state meat inspections, which in the past have given rise to considerable trouble and annoyance.

CLINICAL AND CASE REPORTS.

An Outbreak of Scarlet Fever and the Milk Supply.

By HENRY TAYLOR, F.R.C.V.S., Hayward's Heath.

In the discussions which take place from time to time about pure and clean milk, reference is often made to the possibility of the infection of scarlet fever being conveyed by means of milk, and in the Milk and Dairies Order and Sanitary Law, instructions are given that no persons suffering from an "infectious disorder" may handle or assist in the distribution of milk; but one cannot recall very many cases recorded in veterinary literature in which it has accounted for the spread of the disease. Perhaps this may be due to the fact that animals do not suffer from scarlet fever, and the control of the outbreak is in the hands of the Medical Officer of Health, and therefore no report may reach the veterinary surgeon. An outbreak in this town had certain interesting features and is perhaps worth recording for those interested in Veterinary State Medicine. The Medical Officer of Health, Dr. H. Stott, of Lewes, has kindly permitted me to quote from his report to the authorities in connection with the outbreak in question. I have done so fully and am much indebted to him.

"The outbreak began on November 17th of last year and from then to the 29th there were 26 cases notified: and as the average number of cases during the last 10 years occurring in the district was only 5 per annum, evidently some abnormal method of spread was at work.

"Cases were notified as follows:—

On Nov. 17th	3	cases notified.	Ages	30	3½	7½	
„ 18th	2	„	„	17	23		
„ 19th	3	„	„	7	5½	10	
„ 20th	2	„	„	40	15		
„ 21st	4	„	„	24	8	6	8
„ 22nd	4	„	„	13	6	22	15
„ 23rd	3	„	„	21	8	6	
„ 24th	2	„	„	17	3		
„ 25th	2	„	„	15	10		
„ 26th	0						
„ 29th	1	„	„	30			

The M.O.H. in his report goes on to say:—

"On November 19th, on looking through the notifications I noticed the ages of the patients were somewhat higher than usual. Scarlet fever attacks children from 5 to 10, whilst for scarlet fever due to milk infection the ages are from 17 to 30 or 40. I at once concluded we had to do with milk as a source of infection. Making enquiries, I found that all cases, with three exceptions (and two of these were secondary ones) obtained their milk from one dairyman, and all drank it raw, that is unboiled, and in greater quantities than usual. In the first cases were four children of one family, two had raw milk and liked it and two would not drink milk. The two who drank milk became infected with scarlet fever and the other two escaped.

"On November 20th, I thoroughly examined the dairyman, his wife, two children, nursemaid, bookkeeper and *three* milk carriers and found them well, nor could I find any evidence that they had recently suffered from scarlet fever. One milk carrier, aged 15, was absent at the time of my inspection. On that day (Nov. 20th) he was certified by a doctor to be suffering from scarlet fever. As the rash appeared on the 20th he was probably infected on the 16th—too late to have been the cause of the scarlet fever cases subsequent to the 13th of November. In the same way the bookkeeper employed in the shop and in contact with the milk must have been infected on the 18th or later, for on the 21st she was found to be sick and sent home, where she developed scarlet fever on the 23rd."

Now, this dairyman called B. got his milk from four farms in the locality, and the churns were fortunately not mixed. From R.'s farm the supply was grade A milk in sealed bottles, and none of the customers using this supply developed scarlet fever.

It was later on found that at the houses where milk from W. farm was used there were cases, but not from B.S. farm or T.P. farm; that accounts for the whole of the four farms which supplied B.'s dairy. I visited the three farms, W., B.S., and T.P. at the request of the M.O.H. and examined the cows.

At W. farm one cow had mastitis of the left hind quarter, but the milk of that part of the gland was not used. A sample of milk drawn from the three healthy quarters was examined by the Public Analyst and found to contain no streptococci, staphylococci, tubercle germs or pus cells.

At T.P. farm there was a heifer suffering from an abscess in the udder due to an injury, but her milk was not being used and all the rest of the cows appeared healthy. None of the cows on any of the three farms had eruptions on the teats. To return to W. farm once more. Inquiries here elicited the fact that two of the cowman's children had had scarlet fever and were inmates of an isolation hospital from August 3rd to September 26th, 1927. They lived one a half miles from the farm and did not visit it, so there was no fear of infection being carried by them. Their father, the cowman, was certified by a medical man to be free from infection.

In tracing the outbreak we had thus come to a full stop. There was no reasonable doubt that the milk from B.'s dairy in the town somehow became infected and only that part of his supply which came from W. farm, but how remains a problem, as all the persons there seemed healthy The M.O.H. says that it would appear that the date of the infection of the milk from B.'s dairy was between the 13th and the 15th of November.

The methods adopted in dealing with the outbreak were as follows:—The dairyman instructed his customers to boil the milk as a safeguard. The milk from the farm, it was suggested, should be treated by pasteurisation, but as he had only a copper with no proper apparatus that proved difficult to carry out. Then as he was under contract to take the milk from the farm it was arranged that for a time it should be made into butter there instead. And, of course, there were the usual sanitary precautions and disinfecting procedure carried out where applicable.

Remarks.—The contagion of scarlet fever may be carried by clothes as well as by milk. It also clings to articles of furniture in a room. Osler* says: "Bedding and clothes which have been put away for months and even years may, unless thoroughly disinfected, convey contagion." It

* "Principles and Practice of Medicine"—Third Edition.

was significant that the two children of the cowman should have had the disease, but the time which elapsed between their recovery and the outbreak was rather long—" usually in four or five weeks the danger is over." (Osler).

There are also said to be " carrier " cases of the disease.

Difficult Labour, Prolapsus Uteri and Milk Fever in a Cow.

By M. MacColl, M.R.C.V.S., Helston.

I venture to report the following case, in the hope that it may prove of some interest to readers of the *Veterinary Record*.

Subject.—Cross-bred Jersey cow, nine or ten years' old, a fortnight over her time for calving.

December 10th.—Owner noticed the cow making preparations for calving in early afternoon, but, no calf being forthcoming, assistance was sought at 8 p.m.

I arrived shortly afterwards, and on exploration found the mother quite " open " and prepared for delivery, but with a malpresentation of the fœtus present—forelegs presenting in passage with a backward and downward deviation of head and neck, to the right shoulder. Having corrected the position of the calf by manipulation, the legs were roped and after somewhat strenuous traction, aided by strong expulsive efforts on the part of the mother, a strong live calf was delivered.

The patient was now left comfortable, but alas! at 1 a.m. the owner again telephoned, requesting immediate attention. Arriving shortly afterwards, I was much chagrined to find a complete prolapse of the uterus, the inverted organ trailing in the litter and the cow on the ground, unable to stand. To complicate matters, it was now noticed that the patient was showing decided symptoms of milk fever, but as these were not too alarming, immediate reposition of the womb was decided on. This was successfully accomplished, although not an easy matter with the cow on the ground, and assistance limited to two men. Attention was now directed to the condition milk fever —which was treated in the usual manner, and the patient finally left about 3-30 a.m., as comfortable as one could expect in the circumstances, although of course naturally somewhat exhausted.

December 11th, 9 a.m.—Patient still on the ground and unable to rise—somewhat dazed, but, all things considered, her general condition was satisfactory.

8 *p.m.*—Arrived to find the cow on her feet, and moving about. Pulse good, and temperature normal, and chewing cud. This was considered very satisfactory, especially the absence of fever. Stimulant medicine prescribed.

December 12th.—Patient seen in the forenoon for last time. Progress fully maintained. Pulse and temperature normal and feeding as usual. After this recovery was uneventful and uninterrupted.

My reason for " recording " this case is to illustrate the number of " accidents " which may assail a cow at one parturition, and with what wonderful powers of endurance cattle are endowed, considering the amount of handling such conditions necessarily entail. Also perhaps the occurrence of dystokia, prolapsus uteri and milk fever in one case is uncommon enough to merit mention.

TRANSLATION.

The Discovery of the Cause of Foot-rot in Sheep and a Cure.

Foot-rot in sheep is a disease of which the exact cause has up to the present remained unknown.

At the Academy of Sciences, Paris, M. Mesnil presented a paper by Messieurs Ludovic and Pierre Blaizot in which they announced they had found in the microbic flora of the ulcers of foot-rot a spirochete, analogous to that which is the cause of syphilis, to which they have given the name '*Treponemapodovis.*'

Affected animals treated by intravenous injections of Novarsenobenzol in a dose of 0.gr.60. ($\frac{1}{100}$th of a grain) have been cured.

[In forwarding this translation, Colonel Young writes: " Unfortunately, the name of the French paper from which this was taken and sent on to me, was not stated, but that does not detract from the value of the article."]

ABSTRACTS.

[Recent Developments in the use of Carbon Tetrachloride. Maurice C. Hall, *North Amer. Vet.* Vol. 8. No. 11].

In this paper attention is drawn to the work of Minot,* who demonstrated a relationship between carbon tetrachloride toxicity and a deficiency of ionised calcium in the blood and showed that dogs fed on a diet of lean meat without bone when treated with carbon tetrachloride, developed symptoms of tetany, followed by death. Such animals could be cured by repeated intravenous inoculations of calcium chloride. Oral administration merely delayed death.

It is suggested that the toxicity of carbon tetrachloride for milking cattle may be due to an inadequate supply of calcium in their blood.

As a prophylactic measure before administering carbon tetrachloride, animals should be placed on a diet rich in assimilable calcium for a period of one week.

Animals showing symptoms of intoxication after treatment should receive intravenous injections of calcium chloride, but care must be taken not to exceed the therapeutic dose, as the drug excess is toxic.

[The Relation of Fowl and Swine Tuberculosis. (Lentz, W. (1927). *Dtsch. Tierärztl Wschr.* 35. 47. 758-9. Abs. *B.T.W.* xxxxiv. 26. 440-1)].

In the literature it is said that spontaneous and artificial infections of swine, particularly young pigs, are due to the avian tuberculosis bacillus. The spontaneous disease is due to the ingestion of tuberculous organs or the regular taking up of infected fæces, and rarely through the intermediary of rats and mice. The most recent work indicates that the changes localised chiefly in the retropharyngeal and mesenteric lymph glands cannot be differentiated from those caused by other tuberculosis strains. In 27 swine

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*Minot, A. S. 1927. "The relation of calcium to the toxicity of carbon tetrachloride in dogs." *Prov. Soc. Exp. Biol. & Med.* Utica, N.Y. Vol. 24. pp. 617–620.

DIVISIONAL REPORT.

Midland Counties Division.*

MR. STEELE-BODGER'S REPORT ON THE PROCEEDINGS AT THE WORLD'S DAIRY CONGRESS.

The quarterly meeting of the Midland Counties Division N.V.M.A. was held at Holliday Street Wharf, Birmingham, on Thursday, November 15th. As a meeting of the "National" was being held the same day, the attendance was much larger than usual, members and visitors present including Mr. J. Cormack, the President, who occupied the Chair, Messrs. F. L. Gooch, R. Hughes, H. T. Hughes, J. W. Conchie, W. F. Aston, W. E. Ison, T. H. Hobson, L. Tipper, W. Trigger, B. DeVine, W. H. Brooke, J. L. Brain, G. H. Leader, J. C. Deville, T. Bagshaw, W. Woods, J. W. McIntosh, C. J. Clifford, J. Martin, R. H. H. Over, A. Leslie, R. A. Willett, C. E. Perry, C. J. Peach, A. Carter, A. W. N. Pillers, H. B. Hiles, R. J. Lake, A. Mackenzie, T. N. Gold, J. Robertson, J. A. Robertson, jun., H. W. Griffiths, E. O'Neill, E. Wilkinson, E. C. Bovett, J. H. Hughes, D. Forwell, E. W. Parks, R. L. Phillips, L. W. Heelis, R. Murray, J. R. Barker, H. W. Dawes, G. F. Banham, T. Martin, G. R. Benbow, H. Yeomans, H. W. Steele-Bodger, A. A. Forsyth, A. B. Forsyth, S. M. Woodward, G. V. Tyerman, C. Hunting, J. T. Edwards, Colonel Marriott, and H. J. Dawes (Hon. Secretary).

Apologies for absence were received from the following: Sir John M'Fadyean, Sir Gilbert Barling, Principal Hobday, Professor Macqueen, Dr. Bradley, Messrs. A. J. Anthony, G. D. Bayliss, J. J. Burchnall, W. C. Blackwell, E. Ringer, W. J. Dale, T. Ludlow, E. Hall, H. Thornton, M. Tailby, H. A. Mills, J: R. Carless, J. Whyte, G. Eaton, J. T. Allen, C. Parsons, H. S. Reynolds, E. Franklin, M. T. Sadler, H. E. Powell, and others.

Nominations and Elections.—Captain G. K. Miles, of Husband's Bosworth, was nominated for membership, and the following veterinary surgeons, nominated at the previous meeting, were now elected members of the Division—Mr. J. N. Peatt (Leominster) and Mr. W. F. McConnell (Ledbury).

Arrangements for Next Meeting.—The Hon. Secretary reported that at a meeting of the Council, held earlier in the day, it was recommended that the annual meeting, to be held at Birmingham in February, take place in the evening, and ladies be invited to attend the dinner, as last year.

This was agreed to, and a committee consisting of the President, Treasurer, Secretary, Mr. H. W. Dawes, and Mr. B. DeVine was appointed to make the necessary arrangements.

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affected with generalised tuberculosis, the author has been unable to demonstrate the avian tuberculosis bacillus. The continuation of the experiment will teach whether 25 per cent. of all swine tuberculosis, as Junack has stated, is caused by the avian bacillus.

* Received on December 10th.

INTERNATIONAL DAIRY CONGRESS.

Mr. H. W. STEELE-BODGER, the Division's delegate at the recent International Dairy Congress, submitted the following report:—

My first duty is to thank you for allocating to me the privilege of representing you at the World's Dairy Congress. It was an honour which I appreciate very highly and an experience which I enjoyed immensely.

Numerically our profession was, to my mind, badly represented at the sessions as a whole; only at the special veterinary sections was there more than a handful of veterinarians present, and I venture to say that, from the point of view of professional publicity, these were not the most important sections for us. We know our worth, and our endeavour, therefore, should be to impress others with our value. The paucity of veterinary surgeons at the sections on Milk Production and Animal Physiology in reference to Milk Production was lamentable, in view of the extreme importance of many of the papers to our profession.

The Chairman and essayists were all leading figures in the world of dairying, and a splendid opportunity was lost for ever of bringing our profession to the front by contributing to the discussion of the papers read. The truth of this statement will be more fully appreciated as I refer to some of the more important papers. Every Division of the "National" should have sent a representative, but I believe, gentlemen, that this Division was the only one, certainly the only provincial Division, to send a representative.

The Patron of the Congress was His Majesty the King. The Joint Presidents were the Ministers of Agriculture and Health and the Secretary of State for Scotland. The Chairman of the Congress was Lord Desborough, and though the General Committee was composed of 140 members representing a variety of dairying interests, it is a matter of keen regret that not a single veterinary surgeon was included.

The Congress opened with a reception of the delegates by the Joint Presidents on behalf of the Government at Lancaster House on Tuesday, June 26th.

On Wednesday morning the Congress divided into two sections; (1) Milk Production; (2) Milk Distribution and Manufacture. The former opened with a concise and lucid review by the Minister of Agriculture, with Viscount Astor in the Chair. I will endeavour, as briefly as possible, to give you a resumé of the more interesting papers.

Robert Boutflour expounded his well-known views on the feeding and management of dairy cows. He states that the recorded cows of this country average under 700 gallons and that by proper management this could be increased 50 per cent.; that a cow requires a maintenance and a production ration which must be properly balanced. The cow's stomach must never be overloaded. He deprecates the use of chaff and advocates the elimination or reduction in the quantity of roots fed; this is a modification of his original view. The cow must have an abundant supply of clean water; minerals must be supplied. Preparation for lactation was necessary and overstocking should be avoided; good general management was essential. Mr. Boutflour's paper received some severe criticism from subsequent speakers, notably from James Mackintosh, from the Reading Institute, who read a paper on the Feeding of Dairy Cows. Mr. Mackintosh emphasised the great variety of conditions under which farming is carried on, for example, soil, climate, value of by-products, etc., great variation in values of hay in different years and in different parts of the country. He urged, therefore, that it was better, owing to the varied conditions, to fit a standard to meet the needs of the cows, rather than to try to make the cows conform to one particular standard. The use or disuse of roots was entirely a matter of costs in each district.

Dr. J. B. Orr, Director of the Rowett Institute, Aberdeen, read a short paper entitled "Calcium and Phosphorus in the Metabolism of the Lactating Animal and Factors

that influence their Assimilation." He pointed out that as the chief bone-forming materials, calcium and phosphorus contents of milk are of supreme importance in the nutrition of the young animal. A negative balance of calcium and sometimes of phosphorus is a normal physiological phenomenon in the early stages of lactation. During late lactation and the period of sexual rest storage of calcium and phosphorus occurs, apparently to meet the demands of pregnancy and the succeeding lactation. The modern dairy cow is a product of civilisation; pregnancy and lactation proceed simultaneously for long periods, so that the absorptive functions undergo considerable stress. Concentrated foods have a low calcium content. Thus prolonged drain of these minerals from the body may occur through dietary deficiences or excessive breeding and milk production, and a pathological condition may soon result. The animal may react by secreting milk or it may become sterile or pregnancy may terminate prematurely. Dr. Orr states there is some evidence for believing that the high incidence of tuberculosis in good milk-producing animals is associated with prolonged losses of calcium due to excessive secretion of milk. The addition of cod liver oil to the ration and ultra violet radiation of the animal have proved to be the most powerful aids to their absorption. It is assumed that green plant tissue and cod liver oil operate by virtue of their content of vitamin D. It has recently been shown that the effect of cod liver oil on the metabolism of the lactating animal is not due to the relatively high iodine content nor to the fats it contains. The anti-rachitic properties of cow's milk apparently depend upon the vitamin D content of the diet; for the feeding of rations, previously subjected either to sunlight or to artificial ultra violet rays, has been shown to result in milk richer in this factor than when ordinary winter rations were fed. There is also some evidence suggesting that both cod liver oil and ultra violet light raise the milk calcium in the late stages of lactation.

A most interesting paper was read by Captain John Golding, from the Reading Institute, on "The Effects produced on the Richness of Cow's Milk by Feeding Cod Liver Oil." The essayist shows that the percentage of fat is unaltered permanently by lactation or feeding. He points out the great variation existing in cod liver oils and finds that often the purer and clearer the cod liver oil the less are the beneficial effects shown. After giving details of numerous experiments carried out with a number of cows over a long period, he states that the conclusions reached are that the elusive and variable quality of richness associated with milk fat can be experimentally controlled at will in three directions by feeding cod liver oil to cows.

(1) Its physiological property of growth promotion associated with vitamin A can be increased tenfold as compared with a basal ration of straw, mangolds and selected concentrates.

(2) Its anti-rachitic properties associated with vitamin D can also be increased to a marked degree as compared with a similar control ration.

(3) The percentage content of fat in the milk can be reduced by feeding more than four to six ounces of cod liver oil per cow per day.

Dr. Eckles, of Minnesota, U.S.A., who is one of the leading dairy scientists, gave the results of experiments of introducing magnesium sulphate into the drinking water daily. By so doing, he stated, one was able to increase the amount of available phosphorus.

Dr. Hines, U.S.A., stated that as a result of experiments it was shown that alfalfa hay was high in calcium, whereas timothy hay was low in that mineral. Experimental addition of calcium to timothy had failed to show any increase in calcium content.

Professor Moczarski, the Polish authority on feeding and milk production, advocated feeding the protein foods early in the day. He recommended feeding cake first and roots half an hour afterwards.

Mr. Harold Jackson read a paper, "Milk Recording," showing the improvement that had taken place in the milk yields since the inception of the scheme. He dealt with the evils caused by dust in the cowsheds and stated that the recording societies were responsible to a large extent for the increased cleanliness in milk production.

I was unable to agree with Mr. Harold Jackson. At the present time it is usual to record only once a week, when a separate recording pail is used. This involves the pouring of the milk, which is usually done in the shed, and results in an increased bacterial content. To obviate this, milking pails of a standard weight should be used. Milk should be recorded twice a day. By so doing small variations in individual milk yields are noticed and can usually be remedied. Often the first indication of illness in a cow is a fall in her milk yield; by recording twice daily, attention is drawn to this cow and a serious illness may be avoided. Again, it is only by twice daily recording that an inefficient milker, man or woman, can be spotted.

The afternoon session was devoted to animal physiology in reference to milk production. The Chair was taken by Dr. Marshall, F.R.S., Reader in Animal physiology, Cambridge University, and it is worthy of note that Major-General Sir Frederick Smith was a Vice-President of this section. At the conclusion of this session a special vote of thanks to Dr. Marshall was moved by Professor John Gowen, of the Rockfeller Institute, U.S.A., who commented on the fact that Dr. Marshall's Physiology of Reproduction was accepted as the standard work the world over.

In an interesting paper by T. Hansen, Professor of Animal Production in Berlin, on the specific effect of feeding stuffs on the milk yield of the cow, it was stated that concentrated feeding stuffs could be divided into different groups according to their effect on the yield and composition of milk. Certain feeding stuffs raise the amount of milk, but lower the percentage of fat, while others have little or no effect on the yield but raise the amount of fat.

Professor John Gowen presented the report of the National Research Council, U.S.A., of the problem of correction of milk yield and butter fat yield for age. The average milk yields of dairy cows grouped by breed differ markedly and consistently when plotted on age. The general shape of these curves for all breeds is the same, showing that milk yield is related to age in a manner such that milk yield increases with age at an ever-decreasing rate until an age of maximum production, eight years, is reached, when it declines at an ever-increasing rate as age advances.

H. G. Sanders, from the School of Agriculture, University of Cambridge, in a paper on the standardisation of a lactation record, stated that comparative lactation yields should be standardised for month of calving, length of lactation, age, and length of preceding dry period.

Dr. Tuff, Professor of Animal Breeding, Norway, presented an interesting paper on factors affecting milk yield. The chief factors were (1) the age of the cow; (2) length of lactation period; (3) service period; (4) length of previous dry period. He found that the bodyweight of the cows and the total yield showed no relation when only full grown cows were investigated; that the milk yield increased up to four weeks after calving and then gradually decreased. The period for the maximum daily yield varied from 10 to 80 days after calving. A cow's yield in the first lactation showed small relation to the milk yield in animals full grown in subsequent lactations. The second lactation yield, however, shows a greater co-relation between subsequent yields.

G. T. Roberts, the University College, Bangor, as a result of experiments chiefly with Welsh cattle, found that a heavy milk yield in one lactation period had a depressing effect on the next lactation.

Andrew M'Candlish, West of Scotland Agricultural College, experimenting chiefly with Ayrshire cattle, found that heifers brought into the herd at the age of 27-30 months gave more milk than those calved for the first time at 30-36 months.

Dr. Prawochenski, from Poland, in a paper entitled "Some Data concerning the Co-relation between the Degree of Pigmentation of the Hair and Muzzle in Cattle and the Milking Capacity," found that the percentage of

fat in milk was co-related with the more intensive pigmentation of the mucous membrane, but that the milking capacity was qulte independent of it. Those cattle with dark colours made best use of food in hot weather, whereas those with white points or marks made best use of their food in the winter.

On Thursday, the Milk Production Section met under the Presidency of E. W. Langford, Esq., Past-President of the N,F.U.

The first paper was by Dr. Stenhouse Williams, Director of the Reading Research Institute. Dr. Williams outlined the improvement that had taken place in the dairying industry in the last few years. He detailed the various organisations which had been called into being to acquire and disseminate knowledge. He emphasised the growth of Clean Milk Competitions in the last few years. In 1923-4, seven counties organised competitions—there were 181 competitors and 4,662 cows. In 1926-7 there were 38 counties, 1,062 competitors and 28,520 cows. Dr. Williams urged that what was taught should be truth based upon a sufficiently wide experience so that they should be able to offer the public clean milk of a high quality and free from disease. Dr. Williams mentioned that 20 per cent. of the milk sold in Reading was Grade A (Tuberculin Tested).

" Purchasing Milk on a Quality Basis " was the title of a very able paper read by Mr. Edwin White, Managing Director of the Midland Counties' Dairy, Birmingham. It dealt with the effect of six years' bonus payments on the quality of producers' milk. In the year 1921 this firm instituted monthly competitions in which the first twelve on the list were paid a penny a gallon extra and the next 24 were paid a halfpenny a gallon extra. At first the bonus was based on bacterial count alone, but later coliform organisms were taken into account because it was found, especially in cold weather, that milk might have a low bacterial content and yet be heavily contaminated with coliform organisms—this milk did not keep well. The farms were visited periodically by members of the laboratory staff and advice given. At the end of a contract period those who consistently sent bad milk were dropped. Thus, by regular elimination of the worst, the cleanliness in their milk supply had been greatly improved and wastage due to souring had been reduced to a minimum. The result of this competition proved that good method is of far more importance than good equipment. The farmers became extremely keen and some extraordinarily low bacterial counts were obtained. To illustrate the progress of his scheme, Mr. White stated that whereas in 1922 the first farmer had 4,566 bacilli per c.c., in 1927 the first farmer had only 354. In 1922 the thirty-sixth farmer had 365,535 bacilli per c.c., in 1927 the thirty-sixth farmer had 3,647. In 1922 the sixtieth farmer had 3,665,311 bacilli per c.c., and in 1927 the sixtieth farmer had 7,773. At the present time over 80 per cent. of the milk contains less than 30,000 bacilli per c.c. (Certified Standard) and well over 90 per cent. contains less than 200,000 bacilli per c.c. (Grade A Standard). In 1923 the firm started to pay a bonus for butter fat content—they now pay one-tenth of a penny per one-tenth c.c. butter fat over 3.5, so that if a producer gets 4 per cent. butter fat he gets ½d. per gallon extra. Monthly reports are sent to every producer showing his exact position both as regards bacterial content, coliform content, keeping quality, and butter fat content.

Mr. Macneilage, editor of the *Scottish Farmer*, congratulated Mr. White on what he described as the best paper in the Congress. He hoped it would induce the public to drink more milk and added that his own advice would be to " drink more milk from the Ayrshire coo ! "

Dr. Stephan, Canada, stated that 65 per cent. of the milk sent to creameries and cheeseries in Ontario was paid for on a butter fat basis.

It is worthy of note that the United Dairies, London, have, since the Congress, introduced an identical scheme in Buckinghamshire.

I was very glad to be able to support Mr. White and to emphasise the extraordinary improvement in methods of milk production in my district since this scheme came into force. One can definitely tell on entering a cowshed during milking whether or not the milk produced is going to the Midland Counties Dairy. It was acknowledged that it was a disgrace to be cut off the Midland Counties' list for sending dirty milk and it was a fact worthy of note that the milk from these defaulters was nearly always sold to a dairy company who pasteurised the milk and that not infrequently this was a London Company. I expressed the hope that before long all milk would be purchased on a quality basis, that no one would be allowed to produce milk which had not less than 200,000 bacilli per c.c., and urged an early revision of the Milk (Special Designations) Order.

Mr. Wilfred Buckley, Promoter and Chairman of the Clean Milk Society, spoke in support of Mr. White's paper. He urged a revision of the grades of milk and that they should be described in a simple way as in U.S.A., by A.B.C., so that the consumer should not be mislead. He urged that grading should be compulsory and not permissive.

Mr. Jacobsen, South Africa, said their greatest trouble was in maintaining their percentage of solids, not fat. Often they could not get more than 6.75 per cent.

An interesting paper was read on Indian Dairying by William Smith. He stated that India had a population of 320,000,000 and of these more than one half were vegetarian. The only fat they ate was found in milk, therefore, butter fat was of greater importance to them than in non-vegetarian parts of the world. An initial difficulty was to get the second crosses from European cattle to breed.

Colonel Miller, M.R.C.V.S., India, said that they had got much better results crossing with the Friesian than with the Ayrshires. They had animals doing well which were only one-sixteenth Friesian.

Mr. T. Murari, a native Indian, stated that the cow being a very sacred animal in India, the problem of clearing out the useless cow was far from easy. The cattle could not be eaten, but their carcases could be used for manure purposes.

On Friday morning the two Congress Halls were thrown into one for the joint meeting on Milk Consumption, Administration and Control.

A very large gathering was presided over by Sir George Newman, the Chief Medical Officer, Ministry of Health, who made an excellent chairman.

In his opening address the Chairman said that the advance made in the milk supply during the last twenty years in our own and other countries was one of the outstanding triumphs of preventive medicine. The greatest fault at present was the delay between the time of production and the time the milk reached the consumer. Sir George reminded the public that they got exactly what they asked for. They did not tolerate dirty beer ; why should they tolerate milk with a black residue in the bottom of the glass ? He urged greater co-operation between the producer, the distributor, and the retailer.

A very interesting paper by Professor McCollum, from the John Hopkins University, Baltimore, was read, the title being " The Nutritional Value of Milk and the Importance of Milk in the Human Dietary.". Dr. McCollum stated that the body required daily glucose with at least nine inorganic elements—sodium, potassium, calcium, magnesium, chloride, iodine, phosphorus, sulphur and iron ; and at least five vitamins—A, B, C, D. and E. He advocated the daily consumption of at least one quart of milk per head, which could be taken as a beverage or in creamed soups, ice cream, creamed vegetables, buttermilk, custards, etc. At least two salads a day should be taken. Dr. McCollum said that during the last ten years the beneficial effects of milk drinking in the U.S.A. have been seen in tens of thousands of children. The place to get vitamins, he said, was from the milkman or from the garden, not from the drug store, except vitamin D, which was best found in cod liver oil. As a slogan he would advise " Eat what you like—after you have eaten what you should."

Dr. Corry Mann read a paper illustrating the value of dairy produce in the diet during the school age and made

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a comparison between the diet of a child in a poor industrial district, and that of a public schoolboy in England. He stated that at 15 years of age there was a difference of between 15-20lbs. in bodyweight, in favour of the public school boy. In public schools milk and butter supplied 50-70 per cent. of the total grammes of animal fat eaten daily. In industrial districts the amount of dairy produce was negligible.

Professor Kenwood, Medical Officer of Health for Bedfordshire, expressed the opinion that 20 per cent. of the children in industrial areas were malnourished and that one out of every three or four was physically defective. The inclusion of milk in the diet would correct these deficiencies.

Sir John Robertson, Professor of Public Health, Birmingham, read a paper entitled "Milk and the Public Health from the Standpoint of Communicable Disease." He advocated the wholesale pasteurisation of milk because of the possibility, which he admitted was remote, of a perfectly clean raw milk becoming contaminated with scarlet fever, diphtheria, typhoid, etc., and he stated that even in tested herds he thought that there was a risk of udder infection with tuberculosis between one examination and another.

As your delegate, gentlemen, I could not let this pass without comment, as I felt that not only was it unfair to clean milk producers but also to our profession. I was also not unconscious of the very large part which the United Dairies Ltd., who pasteurise all their milk, had played in the organisation of the Congress, and I was loth that representatives from other parts of the world should return to their countries with the impression that pasteurisation was universally approved. Of the Congress Papers, many dealt with the advantage of pasteurisation, but not a single paper was read on the advantage of raw milk. That I was not alone in my opinion is shown by the following report, taken from the press: "Strong dissent was expressed with Sir John's views by Mr. Steele-Bodger, of the Midland Counties Veterinary Medical Association. 'There is no risk of infection,' he said, 'in the case of milk between one period of inspection of the herd and another if the examination is carried out properly. It is most discouraging,' he proceeded amid loud applause, to anyone associated with the production of clean milk to have pasteurisation thrust down their throats.'" On the previous day, Mr. Edwin White, in a paper on the payment for milk on a quality basis, had shown how farmers were producing wonderfully clean and infection-free milk. There was no need for pasteurisation. It was beginning at the wrong end. When milk was pasteurised it remained in a neutral condition for some time, but fresh milk had at least the decency to go sour when it was no longer fit to drink. The public required to be educated to the fact that pasteurisation could never make dirty milk clean nor could it make it safe from *subsequent* contamination. The present nomenclature of grading was misleading and dishonest.

The Chairman said that Mr. Steele-Bodger's remarks provided a welcome rise in the temperature of the Congress, a rise which was maintained by Mr. Wilfred Buckley, who renewed his protest against the misleading nature of the present designations. Let us have Grades 1, 2, 3 or Grades A, B, C—something which everyone could understand. The Red Cross Society, even, was being misled by the Grade A position. Pasteurisation was a method of dealing with milk which was not altogether above suspicion. Essentially it was not an alternative to "clean milk"; in practice, it was.

The Chairman said he could not resist the temptation to join in the discussion. The Ministry had to think not only of the milk which came from Mr. Steele-Bodger's district, which was apparently excellent, but of the milk supply of London, which came from a vast and varied source over which neither Mr. Steele-Bodger nor himself could have the smallest control. It recalled some observations made by him about 20 years ago in regard to the pasteurising of milk, namely the difference between clean milk, cleanly prepared for market and pasteurised milk grading. No one in the room was more convinced than he that the present grading was unhappy, unfortunate and confusing. If a united opinion could be sent up by that Congress he would guarantee that it should be favourably laid before the Minister of Health.

To my mind, this was a most important statement, coming from the Chief Medical Officer, and I trust, gentlemen, that this Association will pass a resolution condemning the present grading and suggesting some new classification. I would urge that one grade only should be used to designate all milk coming from tuberculin tested herds.

As the proceedings of the Veterinary Section of the Dairy Congress and my criticism of these proceedings have already been published in the *Veterinary Record* of August 11th and 18th, I only propose to refer to that briefly, but I feel that an explanation is due to this Association for that criticism being published in the *Record* before being presented to you. That criticism was prepared by me for the *Record* as an editorial at the request of the Editorial Committee, who, after reading it, asked permission to publish it under my own name; for that breach of etiquette I ask your indulgence. I will now content myself with merely drawing your attention to four recommendations resulting from the proceedings of the Veterinary Section.

(1) The suggestion of Professor Share-Jones, that there should be one consolidated act to deal with all the animals, their products and their by-products—in this way much confusion and overlapping would be avoided and the veterinary profession would come into its own.

(2) The suggested new grades for milk proposed by Mr. Noel Pillers—(*a*) milk from inspected cows free from tuberculosis; (*b*) milk from cows which have been subjected to regular routine veterinary inspection; (*c*) milk pasteurised for such a time at such a temperature as to kill pathogenic bacteria.

(3) The suggestion of Mr. Hugh Begg that all cattle should be tested periodically and that all reacting cows over 10 years of age should be slaughtered, as these are largely responsible for spreading tuberculosis.

(4) Lastly, gentlemen, my own suggestion that a whole-time veterinary service is both necessary and desirable to advise, supervise and co-ordinate the efforts of ALL veterinary surgeons (not merely the present so-called part-time inspectors) who are associated with milk production and the health of dairy stock.

On Monday, July 2nd, I attended the session at Reading on Dairy Bacteriological Technique, under the presidency of Dr. Stenhouse Williams, the Director of the National Institute for Research in Dairying.

The general subject for discussion was the relative values of different methods of testing the cleanliness of milk. Papers were submitted by representatives from Sweden, U.S.A., Switzerland, Italy, Ireland, Germany, Holland and Denmark, and some were of very great interest. Time will not permit me to refer other than very briefly to them.

Dr. F. B. Breed, Chief for Research (Bacteriology), New York Agricultural Experimental Station, described how the milk was safeguarded from the cow to the consumer. In the case of raw milk, he says, this is chiefly done by maintaining tubercle-free herds with some control over mastitis and in recent years over contagious abortion.

I was very astonished and impressed by his statement that during the last twelve months they had discovered on their pasteurisers during pasteurisation masses of pin point colonies of thermophilic bacteria, many of them spore bearing, showing millions of bacteria per c.c. This is one of the best arguments I have yet heard against pasteurisation and the results may quite conceivably be serious.

In the afternoon I spent a most interesting and instructive time at the Research Institute. I have yet to visit an Institute where each and every worker is so keen and so *au fait* with his job. I was more than ever impressed with the resistance of the tubercle bacillus. We were

shown virulent cultures of the bacillus which had been grown from manure which had been artificially dried and kept in the dark for six months, and virulent cultures of tuberculosis which had been grown from milk pasteurised at a temperature of 138.5° F. We were informed that twelve out of fourteen samples of tuberculous milk were virulent after pasteurisation at this temperature—only 5° below the Government standard. And when one remembers that the lower the temperature of pasteurisation the better the cream line, one realises the dangers and temptations of commercial pasteurisation!

Unfortunately, owing to the difficulty I had in obtaining a locum tenens at that time, I was unable to follow the Congress to Edinburgh, much as I would have liked to have done so.

I cannot conclude without a word about the social side. Each afternoon excursions were arranged to farms and dairies round London and in every case the delegates received hospitality; some of the tours were very tempting, but I felt that my duty as your delegate was to attend the sessions. At Reading no fewer than 30 tours were arranged for the delegates, most of them including luncheon or tea at the invitation of the hosts.

On Wednesday evening, the Corporation of the City of London invited all delegates to a reception at Guildhall, where there was dancing until midnight.

On Thursday evening there was a Social Evening at the Crystal Palace, with a reception by the Chairman of the Congress Committee, followed by a supper and a musical entertainment and terminating with a magnificent fire-work display.

On Friday evening there was a dinner by the British Dairy Farmers' Association.

On Saturday there was a tour to Windsor to the Castle, the Royal Farms and Dairy, Eton College and Stoke Poges Church.

On Sunday afternoon, an At Home was given by Mr. and Mrs. G. Titus Barham. Mr. G. Titus Barham is President of the National Dairymen's Benevolent Institution, Vice-President of the British Dairy Farmers' Association and Chairman of the Express Dairy Company. Tea was served on the lawns and a military band was in attendance. The extensive rose gardens and private museum were opened and amongst other items of interest were a certified milk farm of 100 cows, a retail milk distributing depôt, the dairies of the Walker-Gordon Laboratories and six farm teams of four horses, each of the pure Suffolk Punch breed.

In conclusion, may I thank you once again for making me your delegate. May I assure you that I endeavoured to be an active delegate and, finally, may I mention that the next World's Dairy Congress will be held at Copenhagen in 1931, and may I remind you that I know Copenhagen well and hope to be there. (Applause.)

Replying to a vote of thanks for his services, Mr. STEELE-BODGER said it was a matter of regret that the veterinary profession was not better represented at the Congress.

Mr. L. TIPPER said he quite agreed, and he would urge the profession not to neglect the forthcoming International Poultry Congress, for it was in their best interests that veterinary surgeons should attend such gatherings.

The HON. SECRETARY reported that Mr. Hedley Turner asked to be allowed to resign, as he had lately been transferred from Derby to Manchester. He had written Mr. Turner asking him to continue his membership and he awaited his reply.

It was resolved not to accept the resignation, in the hope that Mr. Turner would re-consider his decision.

Helping the Building Fund.—Mr. W. F. ASTON announced that the gymkhana recently held at Shrewsbury on behalf of the building fund of the Royal Veterinary College realised a profit of £54 17s. 10d. and he had since received a further subscription of £5. He wished to thank all who had helped to make the effort a success.

The Animals of the Poor.—The HON. SECRETARY read a letter from the National Veterinary Medical Association referring to the suggested scheme for providing free treatment for sick animals of the poor, which has been drawn up as the result of discussions between representatives of the Royal College of Veterinary Surgeons and the Royal Society for the Prevention of Cruelty to Animals.

The Hon. Secretary thought the subject too important to be disposed of hurriedly and the time at their disposal that day was very short. He therefore suggested that it be adjourned and that in the meantime a copy of the circular be sent to every member of the Association.

It was eventually agreed that the circular be brought up at the annual meeting, a copy of it to be sent to every member in the meantime.

National Horse Association.—A letter was read from the National Horse Association of Great Britain inviting that Division to become affiliated at a subscription of one guinea per annum.

Mr. MCINTOSH said he happened to be one of the representatives of the profession on the Horse Association, which deserved to be supported. They had not been able to do as much as they would like for the want of funds. Personally, he would like to see the Horse Association and the Institute of the Horse come together, as they had so many objects in common.

The HON. SECRETARY moved that the matter be adjourned, and this was carried.

Veterinary Panels.—The HON. SECRETARY brought before the meeting a circular letter which had been received from Smith, Son and Jones, insurance brokers, Birmingham, by certain of their members, stating that they proposed to form what might be termed veterinary panels. They wanted to nominate veterinary surgeons in each district to do the work of such farmers as could be induced to join the panel, and, of course, the firm took an agent's commission.

The HON. SECRETARY reported on the attitude of the Council of the R.C.V.S. towards such a scheme, and without comment, the meeting unanimously ordered that the letter lie on the table.

CLINICAL MATTERS.

Two Operations.—Professor BRAYLEY REYNOLDS, of Newmarket, demonstrated the operation for the cure of poll evil, and Mr. OSCAR STINSON demonstrated the crucial incision operation for the relief of the sphincter of the cow's teat.

The PRESIDENT, proposing a vote of thanks to those gentlemen, said they looked upon Professor Reynolds as one of their best surgeons. Mr. Stinson's enthusiasm for the country practitioner should be a fine incentive to them, because he had shown what a great scope there was for original work in connection with cattle practice.

The HON. SECRETARY seconded the vote of thanks, which was heartily carried.

Curious Cattle Complaint.—Mr. F. L. GOOCH mentioned a curious case which had come under his notice. A Lincoln Red cow in good condition started to vomit after it had chewed its cud. It ate well, but as soon as it

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finished ruminating, the food all came back. There was no pain, no temperature, and apparently no stricture. The trouble did not abate for fourteen days, by which time the animal was like a skeleton. A saline laxative was tried and then tonics. Gradually the vomiting ceased, and the animal was now as well as ever it was. It urinated normally, but there was no bowel action. The owner wanted to slaughter, but he (Mr. Gooch) was so interested in the case that this was not done. He was looking forward to an interesting *post-mortem* examination, but he was disappointed. He thought it was some form of nerve trouble.

Effects of Sugar Beet Pulp.—Mr. ASTON said he had lately had five or six cases of horses choking through feeding on sugar beet pulp. They occurred at different farms.

STRONGYLE THROMBOSIS OF THE MESENTERIC ARTERY.—Mr. E. BRAYLEY REYNOLDS exhibited two *post-mortem* specimens: one, that of an anterior mesenteric artery which showed great distension and complete occlusion, with thrombus material, the result of strongyle infection such as they were all well acquainted with; the other was also of an anterior mesenteric artery which had been similarly affected. The latter was from a throughbred yearling filly which had been destroyed for other reasons. This specimen appeared to him to be of particular interest, in that section of it showed that although the vessel had been greatly distended and distorted, practically all the thrombus material had been removed. He thought that in time the vessel would have returned to a more normal condition. The animal was in good condition and had not shown any sign of bowel trouble. The former specimen was from a thoroughbred yearling that had died showing typical symptoms. In many such cases, in his experience, the animal was in perfect bodily condition and had shown no sign of bowel trouble or other illness; it usually showed very severe suddenly arising abdominal pain accompanied by intensely injected membranes and high temperature, rapidly followed by acute purging, the fæces being very fluid, and if the animal lived long enough they were bloodstained. Death usually took place in a few hours. *Post-mortem* examination revealed acute inflammation of the large bowel, the lining membrane throughout being nearly black in colour. His view was that the sudden and severe enteritis was due to an intensive bacterial invasion from inside the gut: the finally complete plugging of the artery robbing the gut wall of its blood supply and thus allowing its natural defences against bacterial invasion to be overcome.

Mr. R. HUGHES said he had met with a good deal of this trouble among thoroughbred yearlings, and he had tried to discover a preventive. There was no preventive against red worm that he knew of except lime. He advised liming the land every three or four years, using about 30 cwts. to the acre of kiln burnt lime, or 20 cwts. of ground lime, whichever was preferred.

Mr. PILLERS remarked that considering how long they had known of the existence of this worm disease their ignorance concerning it was really phenomenal. A man like Mr. Reynolds, who was constantly meeting influential bloodstock owners, ought to be able to convince them that research work was necessary, both with regard to therapeutic and preventive measures.

Mr. BROOKE said that in nearly every case of twist that he had come across the trouble described by Mr. Reynolds was there.

Mr. REYNOLDS added that in his opinion, if they could prevent this disease, they would remove the cause of a hundred and one of the minor ailments to be met with in the horse.

Birmingham Corporation Thanked.—The HON. SECRETARY moved a vote of thanks to the Birmingham Corporation for allowing the meeting to be held at Holliday Street Wharf that day, and also to Mr. Brennan DeVine for making the arrangements.

Mr. DEVINE, in acknowledgment, said it was a pleasure to do anything to advance the interests of the Division.

The company afterwards adjourned to the Grand Hotel, for tea.

H. J. DAWES, Hon. Secretary.

The National Veterinary Benevolent and Mutual Defence Society.

ANNUAL MEETING.

The Annual Meeting of the above Society was held at the Grand Hotel, Manchester, on Wednesday, December 5th, 1928.

The Chair was occupied by the Vice-President, Mr. J. Lindsay, M.R.C.V.S., in the unavoidable absence of the President, Mr. W. Woods, F.R.C.V.S., who was away at the professional examinations. Other members present were Messrs. J. Spruell, J. Holroyd, J. H. Wright, E. H. Curbishley, O. A. Ducksbury, G. H. Locke, R. C. Locke, F. Hopkin (Hon. Treasurer), and Col. Brittlebank (Hon. Secretary).

Apologies for unavoidable absence were received from Messrs. W. Woods (President), M. T. Giblin, R. Hughes, A. W. Noel Pillers, J. McKinna, and P. Abson.

The minutes of the last Annual Meeting were taken as read.

HON. TREASURER'S REPORT.

The HON. TREASURER (Major Hopkin) in presenting the audited financial statement for the year 1927, stated that the Society was in a sound financial position. He regretted that the list of members in arrears with subscriptions was rather a heavy one, and he was making efforts to get these subscriptions paid. Twelve new members had been enrolled during the year, five members had died, and four had resigned.

In proposing the adoption of the financial statement, Mr. CURBISHLEY said it was a matter of surprise that such a small percentage of members of the profession were members of the Society, and he thought that they did not realise what a valuable insurance it was, especially taking into consideration the low annual subscription. Mr. HOLROYD seconded, and the proposition was carried unanimously.

HON. SECRETARY'S REPORT.

In his report as HON. SECRETARY, Lt.-Col. J. W. Brittlebank said:—

"I beg to submit a brief report of the work of the Society during the year 1927, and am only doing so in the absence of the President.

"First of all let me deal with the defence side of the work of the Society, and here we have again a record of useful work on behalf of members. A number of notifications of threats to take action against veterinary surgeons for alleged negligence have been received, and in all cases, except two, the advice given has been followed, and no action at law has ensued; but in two cases members were actually brought to Court to answer charges of alleged cruelty, and I am glad to say in both cases we were successful in getting the charges dismissed, though unfortunately, as is too frequently the case, without costs. Both the members defended have expressed their deep gratitude to the Society for the assistance they received, and the Society again is deeply indebted to all those who so freely gave their time and services in defence of these members.

"These cases are most unfortunate, to say the least of them, for I do not believe that any veterinary surgeon would be wilfully guilty of cruelty to any dumb animal—but in this respect times are very difficult, and many cases which we know, from our close acquaintance with the lower animals, are not cruelty, definitely appear so to the inexperienced busybodies who have nothing else to do.

"All these factors, however, point very definitely to the need for a Society such as ours, and acting, as we advisedly do in these cases, without fuss or advertisement, perhaps too little is heard of our activities. But there are very definite and sufficient reasons why the work of the Society in individual cases should not be too loudly proclaimed. One very definite fact, however, remains, and that is—this is the only defence fund in the profession, the annual subscription is microscopic, and every practising member of the profession ought to join. The risk of having to defend oneself in a court of law against some irritating and usually very damaging charge is greater than ever it was in the history of our profession.

"The activities in regard to benevolence have been carried on as heretofore, and there is a great amount of personal satisfaction in this work, for there can be no doubt that the proceeds from the funds invested for benevolence have been the means of bringing comfort to many poor souls in the evening of their lives—our only regret is that the means at our disposal are not immensely greater than they are. There are two benevolent funds in the profession, and I am thankful that it is so, but the members can be quite satisfied that there is no overlapping. Dr. Bullock and I are in constant association in this great work, for he is the secretary to the "Victoria," and I am for the time being the president, and you can take it from me there is ample need for both societies.

"Your Council have felt that the time has arrived for a thorough overhaul of the rules of the Society. The existing rules were found to be very cumbrous and imposed so many restrictions as to make the conduct of the affairs of the Society difficult in the extreme. The Council have therefore gone very carefully into these rules and now confidently submit for your approval the rules as revised. The main change brought about by these Rules is that they provide for a quarterly meeting of the Council, which has been enlarged to eighteen from twelve. It is hoped that widespread as are the members elected to Council, they will be able to further the activities of your Society in their respective areas, and to assist generally in bringing deserving cases to our notice. The new rules further provide that the trustees shall have the right, if elected, to be members of Council, and so be more intimately acquainted with the work of the Society in all its activites. Finally, there is provision for the setting up of an executive to carry on the ordinary and urgent business as it arises, and so obviate the present cumbrous position of having to call together the whole Council for every trifling thing that arises. I wish to thank all the Society for their unstinted support during the past year.

"Before going on to refer to the main business this afternoon, I wish to tell you that we have had a gratifying addition to the number of the members of the Society during the current year, and I think the number joined is 55. There is evidence that this growth of new members is going to continue.

"Here I must remind you of our indebtedness to the Council of the National Veterinary Medical Association for giving us free advertising space in the *Veterinary Record*. This advertisement of the activities of your Society has been of great value, and we sincerely hope that the generosity of the 'National' will be continued."

The Vice-President, Mr. LINDSAY, said that before a proposal for the adoption of the report was made, he wished to congratulate Col. Brittlebank on presenting such an encouraging statement. It was gratifying to the members of the Society that they had such a hard worker as the hon. secretary, and he thought that every member of the profession should be a member of the Society for, as Col. Brittlebank had stated, "one never knows what may happen." He agreed entirely with the revised rules, especially with the setting up of an executive, and the proposals with regard to quarterly meetings of the Council. With regard to the benevolent branch, it was a cause which deserved encouragement, and there was no doubt that, with Colonel Brittlebank in office as hon. secretary, the administration of the Society was being carried out in a highly satisfactory manner.

Mr. G. H. LOCKE stated he would also like to thank Col. Brittlebank. The large number of members enrolled during the current year pointed to the fact that somebody had been working hard.

Mr. CURBISHLEY said that, as a member of the Council, he was very gratified by the advance the Society had made during the past year, and much of the credit was due to the keenness of the hon. secretary. They hoped the Society would continue to advance, and that the membership would grow during the year to come. It gave him great pleasure to propose that the report be adopted, with thanks to the hon. secretary. Major WRIGHT seconded the proposition, which was carried unanimously.

REVISION OF RULES.

Col. BRITTLEBANK, in submitting the draft revised rules, said the Council had spent a good deal of time on the matter, and they were satisifed that the new revised rules met adequately the needs of the Society. The main points were the setting up of an executive to deal with any

BENEFICIARIES.

Name.	Age.	Relation.	Occupation.	Grant recommended by Council.
Mrs. A. A.	70	Widow of deceased veterinary surgeon.	Nil. Ill-health.	£2 per month
Mrs. A. B.	62	Daughter of deceased veterinary surgeon.	Nil. Almost blind.	£2 per month
Mrs. K. E. C.	66	Widow of deceased veterinary surgeon.	Nil. Ill health.	£2 per month.
Mrs. E. B. C.	47	ditto.	ditto.	£4 per month.
Mrs. K. L. H.	76	ditto.	ditto.	£2 per month.
Mrs. M. J.	77	ditto.	ditto.	£2 per month.
Mrs. M. L. M.	28	ditto.	Nil.	£4 per month.
Mrs. E. M.	63	ditto.	ditto.	£2 per month.
Mrs. A. M. M.	57	ditto.	ditto.	£2 per month.
Mrs. J. O.	53	ditto.	ditto.	£3 per month.
Mrs. A. E. P.	65	ditto.	ditto.	£2 per month.
Mrs. H. T.	63	ditto.	ditto.	£2 per month.
Mrs. M. E. W.	40	ditto.	ditto.	£2 per month.

urgent business, and to enlarge the Council from twelve to eighteen members. It was hoped to get the members of the Council distributed all over the country so that they could assist the Society with investigations, etc. It was not expected that they would be able to attend meetings of the Council, but nevertheless they could do a lot of useful work.

Mr. G. H. LOCKE proposed, Mr. DUCKSBURY seconded, and it was unanimously resolved, that the revised rules be adopted.

ELECTION OF OFFICERS.

President. It was proposed by Mr. HOLROYD, seconded by Major WRIGHT, and unanimously resolved, that Mr. W. Woods, F.R.C.V.S. be re-elected President for the ensuing year.

Vice-President. Col. BRITTLEBANK proposed, Mr. G. H. LOCKE seconded, and it was unanimously carried, that Mr. J. Lindsay, M.R.C.V.S., Dumfries, be re-elected Vice-President for the ensuing year.

Council. The following were elected Council for the ensuing year:—Messrs. A. W. Noel Pillers, Liverpool; Trevor Spencer, Kettering; F. T. G. Hobday, Principal, Royal Veterinary College, London; G. P. Male, Reading; J. Holroyd, Blackburn; E. H. Curbishley, Alderley Edge; J. H. Wright, Manchester; J. Spruell, Manchester; D. Imrie, Glasgow; J. Clarkson, Garforth, Leeds; C. Hartley, Lincoln; W. D. Rees, Penygraig, Glamorgan; W. Shipley, Great Yarmouth; W. K. Townson, Peterborough; G. H. Locke, Manchester; J. McKinna, Huddersfield; H. Sumner, Liverpool; and W. Packman, Bury.

Trustees. It was proposed by Col. BRITTLEBANK, seconded by Major WRIGHT, and unanimously resolved, that Messrs. G. H. Locke, J. McKinna, H. Sumner, and W. Packman, be appointed Trustees. The motion was carried unanimously.

Hon. Treasurer. In proposing that Major Hopkin be re-elected Hon. Treasurer, Mr. LINDSAY said that he did a tremendous amount of work for the Society, and he did not think they could find a better man for the office.

Mr. G. H. LOCKE seconded, and the proposition was carried unanimously.

Hon. Secretary. It was proposed by Major WRIGHT, seconded by Mr. CURBISHLEY, and unanimously resolved that Col. Brittlebank be re-elected Hon. Secretary.

Assistant Hon. Secretary. Col. BRITTLEBANK proposed, Major WRIGHT seconded, and it was unanimously resolved, that Mr. R. C. Locke be re-elected Assistant Hon. Secretary.

Auditors. Mr. LINDSAY proposed, and Col. BRITTLEBANK seconded, that Major J. Adamson, and Messrs. Litton, Pownall, Blakey and Higson, be appointed Auditors for the ensuing year. The proposition was carried unanimously.

Col. BRITTLEBANK gave full particulars of the beneficiaries to the meeting, and he proposed that the Council's recommendations be adopted. Mr. HOLROYD seconded, and the motion was carried unanimously.

Col. BRITTLEBANK then proposed that the Society send all the beneficiaries letters tendering the good wishes of the Society for the Christmas season, and enclosing £1 to each of them as a special Christmas gift. Mr. LINDSAY said he heartily agreed with the proposal, and had much pleasure in seconding it. The proposition was then put to the meeting and carried unanimously.

The meeting concluded with a cordial vote of thanks to the Vice-President for his conduct in the Chair, and this was passed unanimously.

R.C.V.S. OBITUARY.

SHENTON, Robert, Tideswell, Buxton. Graduated, N. Edinburgh, 22nd July, 1887. Died, December, 1928, aged 70 years.

SOMMERVILLE. At 3 Letham Place, Dunbar, on 20th December, 1928, due to illness contracted during war service, John Sommerville, M.R.C.V.S., beloved husband of Ann C. Grant.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Jan. 8th—N.V.M.A. Committee Meetings, at 10 Gray's Inn Square. 10 a.m., Appointments; 10-30, Organising; 11, Veterinary Officers and Public Health; 12 noon, Parliamentary. N.V.M.A. Council Meeting, 3 p.m., at 10 Red Lion Square.

Jan. 8th—Meeting of the Derbyshire Division, at Derby.

Jan. 10th—Meeting of the Central Division at 10 Red Lion Square, W.C.

Jan. 14th—Meeting of the Editorial Committee, N.V.M.A., 10 Gray's Inn Square, W.C.

Principal Hobday and the Swedish Veterinary Association.

We have pleasure in informing our readers that Professor F. T. G. Hobday, Principal of the Royal Veterinary College, London, on the same occasion as witnesssed the conferring of the distinction upon Sir John M'Fadyean, was elected an honorary member of the Swedish Veterinary Association in recognition of his services to veterinary science. It is regretted that this information reached us too late to permit of the insertion of a complete reference last week.

Army Veterinary Service.

Movements of Officers.

Major M. J. Killelea arrived home from India on the 29th ult., and has been posted to Aldershot for duty in that Command.

Major C. A. Murray has been posted from Woolwich to Aldershot for duty as Officer Commanding, Station Veterinary Hospital, with effect from the 2nd January, 1929.

Major J. S. Nimmo, D.S.O., has been posted from Larkhill to York for duty, with effect from the 4th January, 1929.

Major H. Kirby, D.S.O., sails for India on the 5th January, 1929, for a tour of duty abroad.

Majors L. M. Verney, D.S.O., and V. C. Leckie, D.S.O., sail for India on the 8th January, 1929, for a tour of duty abroad.

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London Gazette—War Office—Regular Army.

Dec. 28, 1928.—Lt. J. S. Kingston, is secd. for serv. with the Ind. Continuous Serv. Cadre (Oct. 30).

Jan. 1, 1929.—Maj. F. J. Andrews, is restd. to the estabt. (Nov. 28, 1928).

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Territorial Army.

Maj. H. C. Jagger, O.B.E., vacates the appt. of D.A.D.V.S. of a Div. (Dec. 31, 1928); Maj. A. Spreull, D.S.O., T.D., vacates the appt. of D.A.D.V.S. of a Div. (Jan. 1); Maj. L. P. Pugh, is apptd. D.A.D.V.S. of a Div. (Dec. 31, 1928); Maj. W. S. Lornie, M.C., T.D., is apptd. D.A.D.V.S. of a Div. (Jan. 1).

World's Poultry Congress and Exhibition, 1930.

The Ministry of Agriculture and Fisheries announces that the fourth World's Poultry Congress and Exhibition will be held at the Crystal Palace, London, from July 22nd—30th, 1930.

The Congress is being organised by the Ministry, in conjunction with the Board of Agriculture for Scotland and the Ministry of Agriculture for Northern Ireland, and generally under the auspices of the International Association of Poultry Instructors and Investigators. The Ministry undertook the responsibility at the request of the National Poultry Council, and on the assurance that the full support of the poultry industry would be forthcoming.

Their Majesties the King and Queen and H.R.H. the Prince of Wales have graciously consented to become Patrons of the Congress, and the Minister of Agriculture and Fisheries, the Secretary of State for Scotland and the Minister of Agriculture for Northern Ireland will be Presidents. Mr. F. C. Elford (Canada), President of the International Association of Poultry Instructors and Investigators, is first Vice-President, and the Vice-Presidents so far appointed are Lord Dewar, Dr. Edward Brown, and the President of the National Poultry Council. The President of the National Farmers' Union has also been invited to become a Vice-President of the Congress. The work of the Congress will be carried through with the advice of a Finance and General Purposes Committee and of various Sub-Committees, each concerned with a particular section of the work. These Committees together constitute the General Committee, of which the Chairman is Sir Charles J. Howell Thomas, K.C.B., C.M.G., Permanent Secretary to the Ministry of Agriculture and Fisheries, and the Vice-Chairman, Mr. H. E. Dale, C.B., Principal Assistant Secretary. The Director of the Congress is Mr. P. A. Francis, O.B.E., the Ministry's Poultry Commissioner. Dr. V. E. Wilkins, of the Ministry, has been appointed Secretary, and Mr. J. A. McGilvray, Assistant Secretary.

The Ministry recognises that the success of the Congress will depend to a large extent upon the whole-hearted co-operation of all sections of the poultry industry. The Crystal Palace is an ideal venue for the purposes of the Congress, and it is probable that the whole of the lecture sessions and business meetings will be held there during the period of the Exhibition. In addition to the important paper-reading side of the Congress, at which numerous problems affecting the progress of the poultry industry will be under discussion, there will be an international exhibition, to which all participating countries will contribute. This will consist of displays of poultry, rabbits and pigeons, together with educational and research exhibits illustrating the development of the poultry industry in the various countries, and a comprehensive trade exhibit staged by commercial interests in this country and in other parts of the world.

The Campaign against Tuberculosis.

Dr. A. W. Crawford (Bolton) writes to the *British Medical Journal* (Dec. 29, 1928): "In your report on October 20th (p. 714) of the Conference of the National Association for the Prevention of Tuberculosis I noticed that the American Indian suffered from tuberculosis in epidemic form, but there was no word about the origin or how the bacillus was propagated. This was surely an opportunity lost. We have not yet found any means by which the disease, once established, can be eradicated, so that all our methods of treatment are simply tentative. I suggest that the following points should receive some attention. Do human beings pass on the disease from one to another? Do the lower animals do so? Do human beings transmit the disease to the lower animals? Do the lower animals return it to the human? To settle these points, in my opinion, would be a step towards the elucidation of the problem. Our present methods are like plucking the leaves off a tree and allowing the tree to grow."

XUM

Mechanical Slaughter.

The Slaughter of Animals (Scotland) Act, so far as cattle are concerned, came into operation on New Year's Day. The slaughter of cattle must now be performed by a mechanically-operated instrument.

Sir John Gilmour, Bart., M.P., Secretary of State for Scotland, has presented to the Animal Breeding Research Department, University of Edinburgh, plaster casts of two models of Clydesdale horses which were the foundation animals in the stud of his father at Montrave.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents

The Double Intradermal Tuberculin Test in Cattle.

To the Editor of the Veterinary Record.

Sir,—There is now a considerable amount of literature about the above test, as it affects cattle, but, so far as I am aware, none of it gives the tissue changes that occur at the site of the injections and reaction; not even are they given in the publications of the Medical Research Council.

Recently, I was given, by a client, the opportunity of removing, surgically, from the neck of a reacting cow, the enlargement left about one month after the test was made, and a small subcutaneous, subsidiary growth which had arisen probably two to three inches from the site of injection. These were sent to a pathological laboratory for examination, and the following is a copy of the report received, which might be of some interest to those who use this test.

The thickened portion of skin was found to contain several areas composed of epithelioid cells, round cells, and in three instances giant-cells. *Mycobacterium tuberculosis* was not demonstrated by appropriate staining methods. The small nodule was composed of new granulation tissue, throughout which were scattered numerous foci composed of epithelioid cells and a few round cells. No giant-cells were found. *Mycobacterium tuberculosis* was not demonstrated by appropriate staining methods. Some of the foci were undergoing necrosis.—Peter Wilson, M.R.C.V.S.

48 Albany Drive,
Lanark.
December 24th, 1928.

The History of Veterinary Science.

To the Editor of The Veterinary Record.

Sir,—May I express my pleasure at the very interesting paper by Mr. Masson published in your issue of last week. The increased interest in veterinary history, of which it is a sign, deserves every encouragement.

Mr. Masson will, I am sure, not mind if I point out one or two slips.

Hammurabi is not mentioned in Genesis XII. Amraphel is mentioned in Genesis XIV, and has been indentified with Hammurabi. But Genesis makes no mention of the "Laws of Hammurabi." The "Book of the Covenant" set out in Exodus XX to XXIII, and the Laws of Deuteronomy, show many similarities with the Code of Hammurabi, but the latter represents a much more advanced civilisation.

At p. 116 the reference to the Duke of Newcastle requires the comment that the Duke who wrote on Horsemanship in the 17th century was William Cavendish (Duke of Newcastle-on-Tyne) and no relation to the present Duke (of Newcastle-under-Lyme in Staffordshire), whose name is Pelham-Clinton and whose title was created in 1756.

The next paragraph relating to the foundation of the London Veterinary College needs correcting in the following respect. It was the *Odiham* Agricultural Society that proposed in 1785 to send two students to Alfort for the purpose of improving the art of Farriery, but the opening in London of a Veterinary College was the idea of St. Bel, and on the success of his project in 1791 the Odiham Society relinquished its own proposal.

In Mr. Motton's reference (p. 1122, col. 2) to the letters patent of 1363, there is a slip, for this date fell in the reign of Edward III.—Yours faithfully, Fred Bullock.

10 Red Lion Square,
W.C.1.
December 31st, 1928.

B. cholera suis and *B. paratyphosum B.*

To the Editor of The Veterinary Record.

Sir,—On page 1087 of the *Veterinary Record* (Dec. 22, 1928), Mr. Walker in his paper on Swine Fever says "*B. cholera suis* . . and since this organism is culturally, morphologically and serologically indistinguishable from *B. paratyphosis* B,".

Assuming that *B. cholera suis* is another name for *Bact. suipestifer*, may I point out that this organism can be distinguished from *Bact. paratyphosum B.* by the absorption method. These two organisms are serologically related and cross agglutination between them may occur, but reference to recent work on the antigenic analysis of the Salmonella group of bacteria points to a difference in their specific "H" heat labile antigens and also their "O" heat stable antigens.

A further point is that *Bact. paratyphosum B.* rarely or never causes food poisoning. This condition is usually caused by other members of the Salmonella group, viz., *Bact. ærtrycke*, etc.—Yours truly, Reginald Lovell.

London School of Hygiene and Tropical Medicine,
W.C.1.
December 31st, 1928.

Vaccination and Increase in Number of Dogs.

To the Editor of The Veterinary Record.

Sir,—The anticipated increase in number of dogs by prevented early deaths through vaccination would, no doubt, be combated by the introduction of a high graduated increase of licence to £1 1s. for the first, £2 2s. for the second, £3 3s. for the third dog and so on.

Since the introduction into Germany of the high graduated licence for dogs the veterinary surgeons there have benefited from it by an increased demand for their services. I believe that, if such were introduced here to keep down the great number of useless or ill-cared-for animals, the value of dogs would go up and, they being mainly luxuries, no free or cheap treatment for them should be expected or given.

Increased revenue derived from luxury animals should go to develop agriculture and therefore find employment on the land for those thrown out of work through no fault of their own. This would be better for all concerned than paying out doles to assist people in their enforced idleness. Certainly such a scheme would not decrease the already decreased income of the country practitioner or even that of the town practitioner.

To every cause there is an effect and sooner or later the effect would demand combative treatment; that is, if the cause could not be removed. Luxuries should be taxed to balance or negative poverty. Why worry when there is a specific antidote ready at hand to be applied when occasion necessitates it?—Yours faithfully, Henry Gray.

The Editor acknowledges the receipt of the following:—Communications from Messrs. Herbert Buckingham (Norwich), F. T. Harvey (St. Columb), J. W. Hall Masneter (Newnham-on-Severn), Kevin F. Quin (London), L. C. Tipper (Birmingham) and P. Vincent (Hove).